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DRAFT ENVIRONMENTAL ASSESSMENT

Mt. Jefferson and Mt. Washington Wilderness Trails Project

Sisters Ranger District, Deschutes National Forest

Jefferson County, Oregon

T11S, R09E, T12S, R08E, T14S, R08E W. M.

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SUMMARY

The Deschutes National Forest proposes to change the Trail Class of two trails and decommission three trails within two wilderness areas and close two trailheads. The Mt. Jefferson Wilderness contains two trails proposed for a change in Trail Class and two trails proposed for decommissioning. The Mt. Washington Wilderness contains one trail proposed for decommissioning.

Trails within the Mt. Jefferson Wilderness proposed for a change in Trail Class are the portion of the Jefferson Lake trail (#4006) northwest of the prominent lava flow to Patsy Lake and the Brush Creek trail (#4004). Both trails would change from Trail Class 3 to Trail Class 1. (See Appendix A for definitions). The combined distance of these two trails is approximately 13.2 miles.

Trails within the Mt. Jefferson Wilderness proposed for decommission are the Minto Lake trail (#4006) and Sugar Pine Ridge trail (#4002). The trail within the Mt. Washington Wilderness that is proposed for decommission is the Dry Creek trail (#4050). Decommissioning of these trails would result in: (1) the removal of signs associated with the trails; (2) drainage work along trail segments to prevent heavy erosion; (3) removal of any structures, such as bridges, that are associated with the trails; and (4) restoration work to encourage rehabilitation of the trails. The combined distance of these trails is approximately 15.7 miles.

The Dry Creek/Hortense Lake trailheads (#4050) in the Mt. Washington Wilderness would also be closed. Actions would include removing any remaining infrastructure and deleting the information from maps and other publications.

The project does not involve timber harvest.

The project area is located about 12 miles west and northwest of Sisters, Oregon. Specifically, the Minto Lake trail is located at Township 12 S. Range 8 E. Sections 22, 16, 21, and 20; the Brush Creek trail is located at Township 12 S. Range 8 E. Sections 2, 3, 4, and 5; the Sugar Pine Ridge trail is located at Township 11 S. Range 9 E. Sections 29, 30, 25 and Township 11 S. Range 8 E. Sections 25, 23, 22, and 21; the connection trail between the Cabot Lake trailhead and the Jefferson Lake trailhead is located at Township 11 S. Ranger 9 E. Sections 36, 31, 32, and 29.; and the Dry Creek trail is located at Township 14 S. Range 8 E. Sections 21,28,29,20,17, and 8.

The management area allocation is Wilderness, Management Area 6; Metolius Special Forest, Management Area 22; Metolius Scenic Views, Management Area 26; and Late Successional Reserve as described in the Deschutes National Forest Land and Resource Management Plan, as amended.

The proposed action would:

- Change in Trail Class on two trails:
    - Jefferson Lake Trail (#4006) – Mt. Jefferson Wilderness Area
    - Brush Creek Trail (#4004) – Mt. Jefferson Wilderness Area
- Decommission three trails:
    - Sugar Pine Trail (#4002) – Mt. Jefferson Wilderness Area
    - Minto Lake Trail (#4006) – Mt. Jefferson Wilderness Area
    - Dry Creek/Hortence Trail (#4050) – Mt. Washington Wilderness Area
- Close these trailheads:
    - Dry Creek Trailhead (#4050) – Mt. Washington Wilderness
    - Hortense Lake Trailhead (#4050) – Mt. Washington Wilderness

Based upon the effects of the alternatives, the Responsible Official will decide to select either the no action or an action alternative.

INTRODUCTION

Document Structure

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

- *Introduction:* The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Comparison of Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action. This discussion also includes possible resource protection measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Environmental Consequences:* This section describes the environmental effects of implementing the proposed action. This analysis is organized by resource area. Within each section, the affected environment is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison.
- *Agencies and Persons Consulted:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Sisters Ranger District Office in Sisters, Oregon.

Existing Condition

The Mt. Jefferson and Mt. Washington Wilderness areas are co-managed by Deschutes and Willamette National Forests. Wilderness managers for these forests have long expressed concerns about recreation and resulting biophysical and social impacts in Wilderness. Those developing concerns in the 1980's were later incorporated into the Deschutes National Forest Land and Resource Management Plan (LRMP). Presently, Cascade Crest Wilderness areas such as the Mt. Jefferson and Mt. Washington Wilderness areas experience high levels of recreation use. Wilderness managers look to several key indicators to measure recreation impacts to a Wilderness areas condition:

- Wilderness Permit Data/ Persons At One Time (PAOT)
- Limits of Acceptable Change Recreation Site data
- Probability of encounter
    - Wilderness Ranger Daily Encounter Tables
    - Solitude Monitoring
- Wilderness Resource Spectrum

The Deschutes National Forest manages 32,734 acres of the 105,299 acre Mt. Jefferson Wilderness area and 14,219 acres of the 54,278 acre Mt. Washington Wilderness area. To coordinate management activities the Deschutes and Willamette National Forests formed the Cascade Crest Wilderness Working

Group. Each Forest retains responsibility for annual operations, maintenance and coordination of planning and project work.

There are many unique challenges in high use Wilderness environments such as preserving Wilderness Character, maintaining trails to Forest Service standards, and providing desirable and sustainable recreation experiences.

Trail Conditions

All of the trails identified in this EA have been assigned to the WRS primitive zone which is intended to be a relatively unmodified natural environment where there is a high opportunity for exploring and experiencing considerable isolation, solitude, challenge, and self-reliance through the application of primitive recreation skills.

Trails are assigned an identification number and a Trail Class number. Trail Class numbers are along a matrix from 1 to 5, going from minimally developed (1) to fully developed (5) (See Appendix A of this EA). Trails classified as "developed" (Trail Class 3) are the highest level of development generally allowed within wilderness. The Deschutes LRMP states that most trails within wilderness would be maintained as Trail Class 2, but that the trail system should be managed to meet Wilderness objectives and provide users with opportunities to test skills, experience physical exertion and accomplishment. Trail Class 1 maintenance standards intentionally provide trail users with an opportunity to access an unmodified natural environment where considerable isolation, solitude, challenge, and self-reliance exists.

Since 2003 several stand replacement wild land fire events have affected the Mt. Jefferson and Mt. Washington Wilderness areas including the B&B fire of 2003 and the Shadow Lake fire of 2011. Vast areas were intensely burned resulting in rapid changes to tree cover, understory vegetation, and soil conditions. The trails identified in this EA are intensely overgrown with early seral shrubs. Long segments of the trails have shrubs growing in the trail tread and reach heights of ten to twelve feet. Heavy deadfall with over one hundred trees per mile in some areas obscure the trail tread. Uncontrolled erosion and fire effects have damaged or obliterated most of the erosion control features installed in the trails. The trails identified in this EA are system trails that either offer duplicated access to wilderness destinations by other system trails or are excellent candidates to provide a recreation experience more aligned with the experiences found in WRS primitive.

Due to the fires and their effects, the trails identified in this EA are very difficult to find and follow on the ground. All of these trails remain on maps available to the public, and do not indicate their current condition versus their assigned Trail Class. Periodic search and rescue missions have occurred since 2003 to retrieve lost visitors attempting to use these trails.

The Mt. Jefferson Wilderness has eight Trail Class 3 Forest Service system trails that provide access to the east side of the Mount Jefferson Wilderness Area (See Figures 2 and 3). Most of the system trails provide East/West access to the Cascade Crest and an entire complement of system trails on the Willamette National Forest's portion of the Wilderness Area. There are several instances where trails beginning on Deschutes National Forest duplicate access to similar geographic destinations.

The Mt. Washington Wilderness is most easily accessed from the west utilizing a complement of trails including the Pacific Crest National Scenic Trail. Historically, the only trail maintained on Deschutes National Forests portion of Mt. Washington Wilderness has been the Dry Creek/Hortence trail (#4050) (See Figure 3). This trail is characterized as a densely forested trail with no primary destination, loop option or connection to the greater trail system. This trail receives very little visitor use and permit data and field observations suggest Dry Creek trail is used primarily during the hunting season. This trail has not been maintained to standard since 2004, experiences heavy blow down of trees, and is very low on the trail maintenance priority list. The Shadow Lake fire of 2011 compounded the maintenance challenge of the Dry Creek trail as the fire consumed 100% of all drainage features. Post-fire effects resulted in significant soil transport obliterating any recognizable component of the trail tread.

The required maintenance and reconstruction needed to maintain these trails to standard is beyond the capacity of both Forest Service personnel and volunteers.

Wilderness Character

The Wilderness Act of 1964 states that Wilderness areas, "…shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character…" (Wilderness Act 1964, Section 2(a)).

Preserving Wilderness Character and the range of experiences prescribed by the Wilderness Resource Spectrum (WRS) can be difficult (described in Land and Resource Management Plan Direction and found in Appendix B of this EA). The Wilderness Act of 1964 defines Wilderness as areas that are: 1. Untrammeled; 2. Natural; 3. Undeveloped; 4. Provide outstanding opportunities for solitude and unconfined recreation; and 5. may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value (Wilderness Act 1964, Section 2(c)).

Responding to high levels of recreation use in Mt. Jefferson Wilderness, managers have prescribed and implemented a number of management actions including a limited entry area on the Willamette National Forest, designated campsite areas, campfire prohibition zones, and one way travel routes.

The Deschutes National Forest Wilderness and Cascade Recreation Area Plans (WCRA) states that "it is relatively common to use a specific number of recreation users (a recreation capacity) as a measure of the threshold of overuse or as a maximum level of tolerable use in wilderness. Such numbers, however, are only weakly linked to the condition of wilderness settings and to the maintenance of wilderness values" or characteristics. WCRA uses the concept of Persons At One Time (PAOT) as a way to express capacity. PAOT must be qualified using the Wilderness Resource Spectrum (WRS) prescription for probability of encounters for each of the three WRS zones. Comparing PAOT with the WRS prescribed probability of encounters provides a more accurate picture of social conditions within the Wilderness setting.

The prescribed PAOT for Deschutes National Forests portion of the Wilderness is 116-176. Wilderness permit data for 2011 indicated that 6,632 individuals (divided among 2434 groups) accessed Mt. Jefferson through a Deschutes National Forest Wilderness trail head. Assuming a 90 day primary season of use this equates to 74 PAOT/day. This however, does not account for permit compliance or the variability of recreation use across the days of week and months of the season. Wilderness Ranger daily visitor contact reports better illustrate the social conditions within Mt. Jefferson Wilderness. During the 2011 summer season, 26 Wilderness patrols were completed in Mt. Jefferson Wilderness. Of those, none of the patrols met the encounter standards prescribed for WRS pristine. Nine patrols fell within or met the encounter standards for WRS primitive. Five patrols fell within or met the encounter standards for WRS semi-primitive and 10 patrols exceeded all WRS encounter standards.

Evaluating PAOT and Wilderness Ranger visitor contact reports illustrates the declining opportunities for solitude. This has reduced not only the Wilderness Character of the areas, which the Forest Service is required to maintain, but also the desirable and sustainable recreation experiences.

Location

The project area is located about 12 miles west and northwest of Sisters, Oregon. Specifically, the Minto Lake trail is located at Township 12 S. Range 8 E. Sections 22, 16, 21, and 20; the Brush Creek trail is located at Township 12 S. Range 8 E. Sections 2, 3, 4, and 5; the Sugar Pine Ridge trail is located at Township 11 S. Range 9 E. Sections 29, 30, 25 and Township 11 S. Range 8 E. Sections 25, 23, 22, and 21; the connection trail between the Cabot Lake trailhead and the Jefferson Lake trailhead is located at Township 11 S. Ranger 9 E. Sections 36, 31, 32, and 29.; and the Dry Creek trail is located at Township 14 S. Range 8 E. Sections 21,28,29,20,17, and 8. See Figure 1 for a vicinity map of the project.

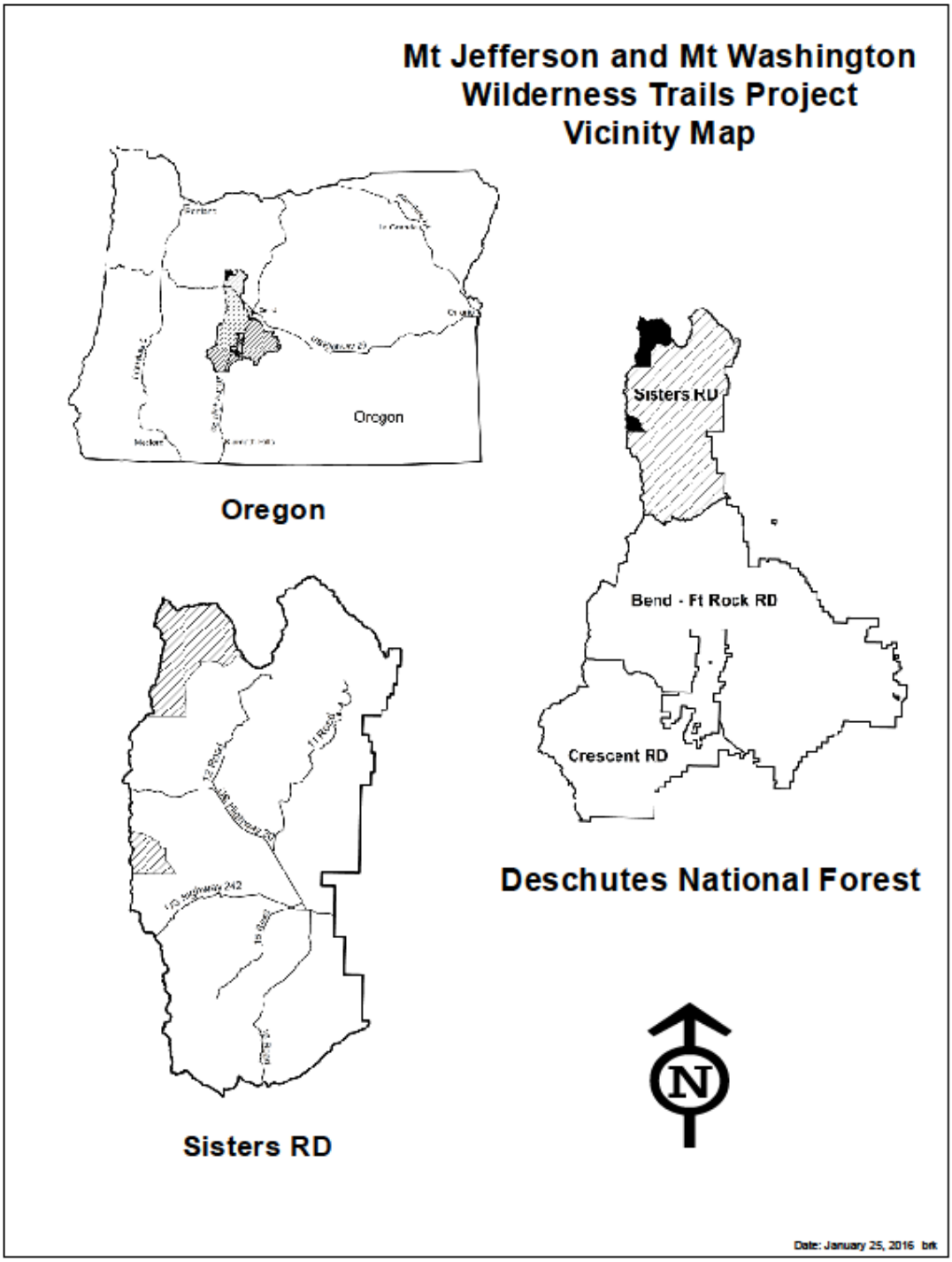

Figure 1. Vicinity Map

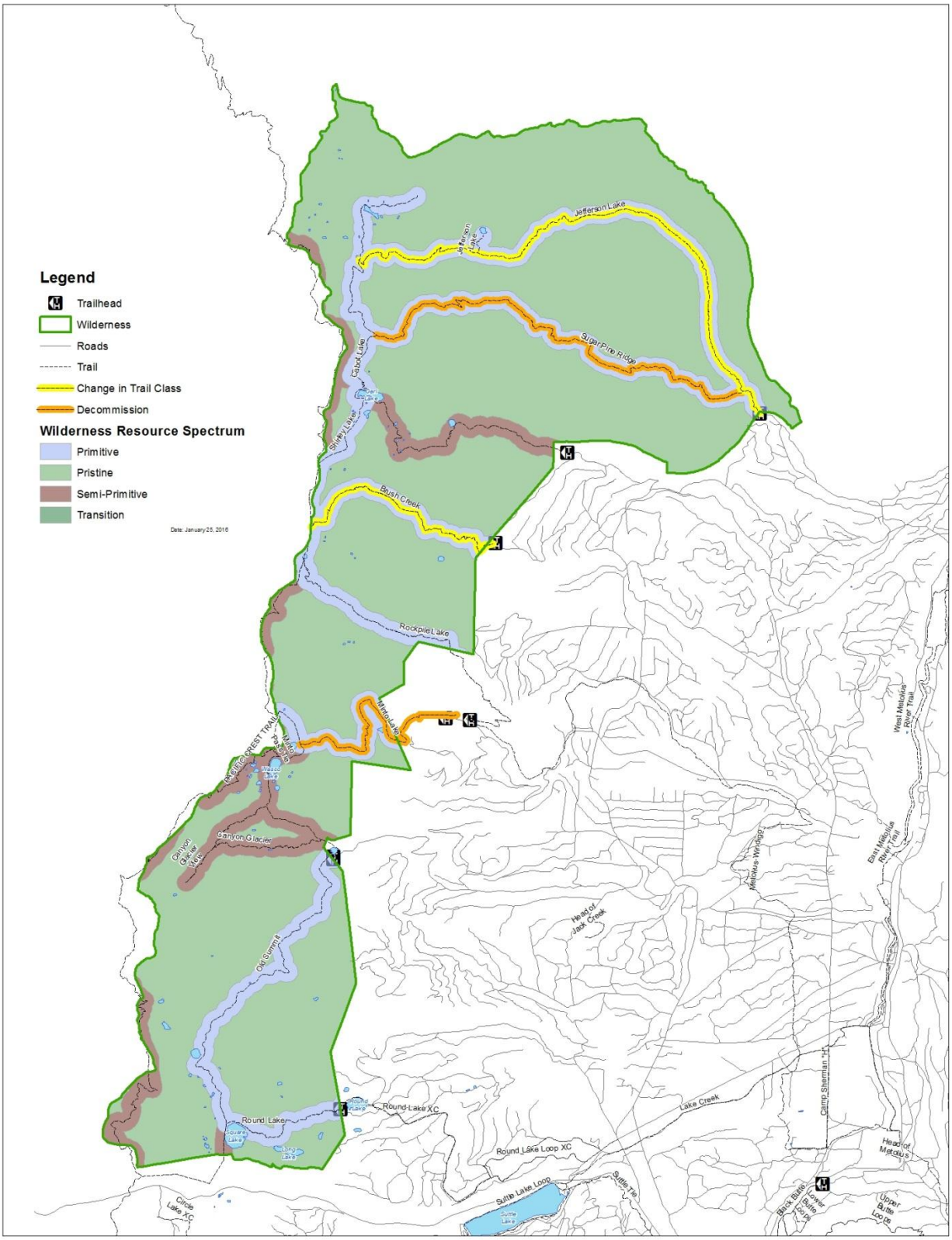

Figure 2. Mt. Jefferson Wilderness - Wilderness Resource Spectrum

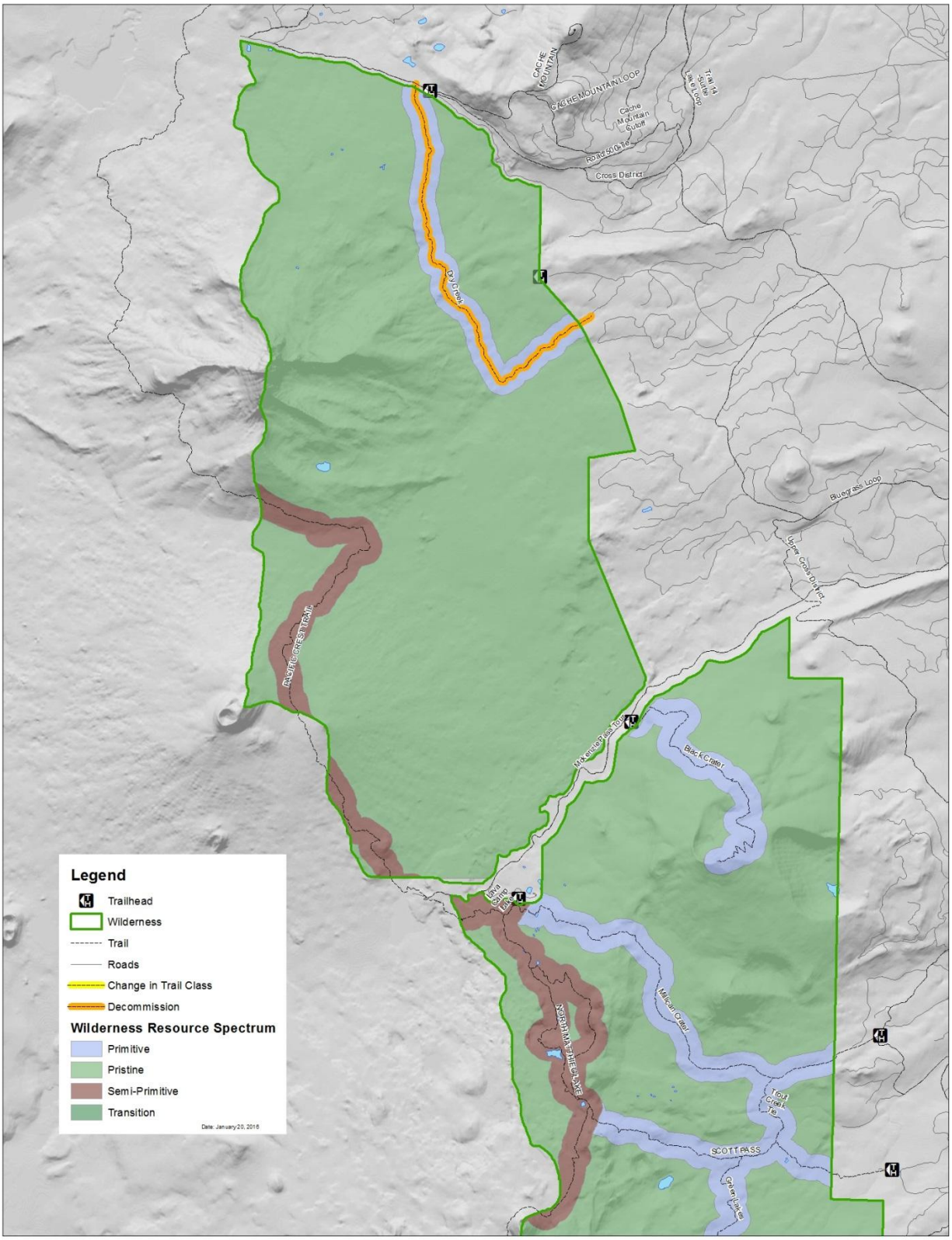

Figure 3. Mt. Washington Wilderness - Wilderness Resource Spectrum

Planning Framework

Development of this environmental assessment follows the implementation of regulations of the National Forest Management Act (NFMA); Title 36, Code of Federal Regulations, Part 219 (36 CFR 219; Title 36 Code of Federal Regulations, Part 200 (36 CFR 220); Council of Environmental Quality, Title 40; CFRs, Part 1500-1508, National Environmental Policy Act (NEPA).

Many federal and state laws, including the Forest and Rangeland Renewable Resources Act (RPA), Endangered Species Act, Clean Air Act, and the Clean Water Act also guide planning and analysis.

Deschutes National Forest Land and Resource Management Plan

This environmental assessment is tiered to the Record of Decision (ROD) for the Deschutes National Forest Land and Resource Management Plan (LRMP) signed on August 27th, 1990. The LRMP was amended by the Northwest Forest Plan in 1994.

The 1990 Deschutes National Forest Land and Resource Management Plan, as amended, guides all natural resource management activities and provides standards and guidelines for the Deschutes National Forest.

Deschutes National Forest Land and Resource Management Plan, Wilderness (MA-6) Standards and Guides

The LRMP established wilderness management objectives, standards and guidelines in two primary ways. First, general standards are established for all Wilderness areas managed by Deschutes National Forest. This portion of the LRMP established the Wilderness Resource Spectrum and generalized standards for recreation capacity, campsites, encounters, trail construction and management, motorized/mechanized use and indicators and monitoring. Second, each individual Wilderness area is provided a desired condition statement with area specific management objectives as they relate to the WRS.

Deschutes National Forest Wilderness areas have been divided into zones called the Wilderness Resource Spectrum (WRS). The WRS contains four zones: 1. Pristine; 2. Primitive; 3. Semi-Primitive; 4. Transition. The development of the WRS recognizes that different areas within Wilderness can and should provide different opportunities and experiences. Each zone has its own definition and set of management objectives (Appendix B). The WRS establishes standards for social encounter probabilities, campsite densities and sizes to objectives for vegetation and wildlife. WRS zone pristine describes standards intended at providing the highest opportunity for solitude and emphasis on natural conditions. Conversely, the transition WRS zone allows for a higher probability of social encounters, greater change to vegetation due from recreational use, and higher densities of dispersed campsites.

Trails

Trails in Wilderness are used to provide access and recreation enjoyment and limit the impact of recreation on the Wilderness environment. The trails system shall be managed to a standard that would meet management needs for protecting the resource, distributing visitor use, eliminate duplication of routes and minimize maintenance costs. The LRMP allows for trail design, construction and maintenance and establishes standards for trails related work in Wilderness. Most trails in Wilderness are to be categorized at Trail Class Two.

Motorized and Mechanized Equipment

Use of motors or mechanized equipment is prohibited. In specific instances related to threats to life, health or property, the Forest Supervisor or Regional Forester may approve motorized/mechanized use.

Capacity

Capacity was determined for each Wilderness area based upon a Limits of Acceptable Change (LAC) analysis. Federal regulation 36 CFR 219.18a requires that Wilderness management plans provide for limiting and distributing visitor use of specific areas in accord with periodic estimates of maximum levels of use that allow natural processes to operate freely and that do not impair the values for which wilderness areas were created. Periodic monitoring of recreation use levels within wilderness are to be used to determine whether or not the management objectives described in the WRS are being met.

Encounters

The LRMP prescribes an acceptable level of group encounters within Wilderness based on an 80% probability concept. In WRS Pristine, the standards is one encounter per/day 80% of the time. In "WRS Transition" areas, no more than 10 encounters per/day 80% of the time is prescribed.

Other LRMP Land Allocations

Metolius Special Forest (MA-): The goal is to rehabilitate and sustain a healthy forest with an emphasis, while maintain a near-natural appearance, and providing a range of recreational opportunities for public use and enjoyment.

Metolius Scenic Views (MA-26): The goal of this land allocation is to provide forest visitors with high quality scenery that represents the natural character of the Metolius Basin.

Figures 4 and 5 show the land allocations in and around the project area.

The acres in the project area by the LRMP land allocation are shown in Table 1.

Table 1. LRMP Land Allocations in the Mt. Jefferson and Mt. Washington Trails Decommission Project.

LRMP Management Allocations	Acres
Mt. Jefferson Wilderness	23,289
Mt. Washington Wilderness	5,418
Metolius Special Forest	1097
Metolius Scenic Views	11
Total	29,816

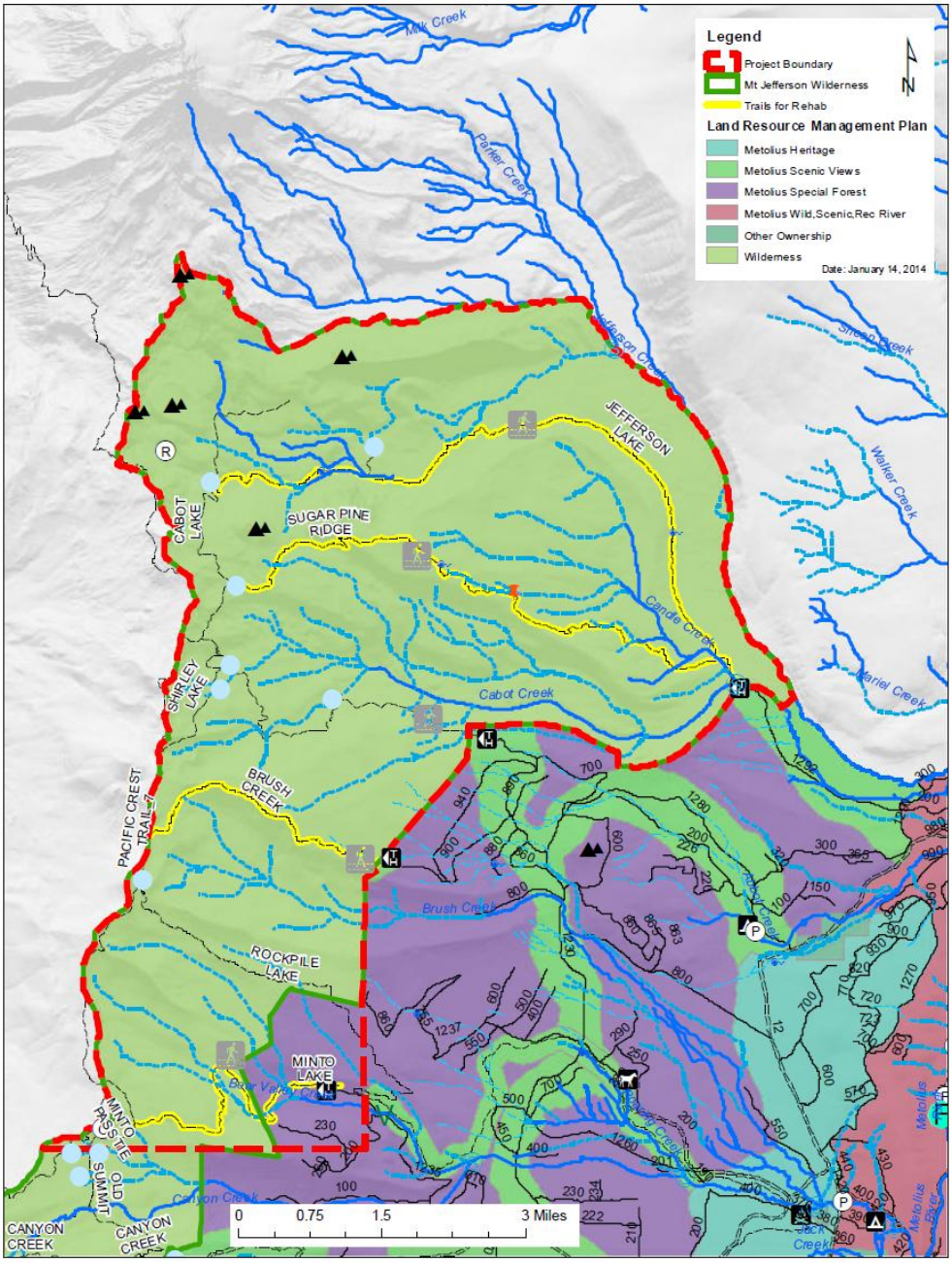

Figure 4. Mt. Jefferson Wilderness Area Project Area Deschutes National Forest Land and Resource Management Plan - Land Allocation Map

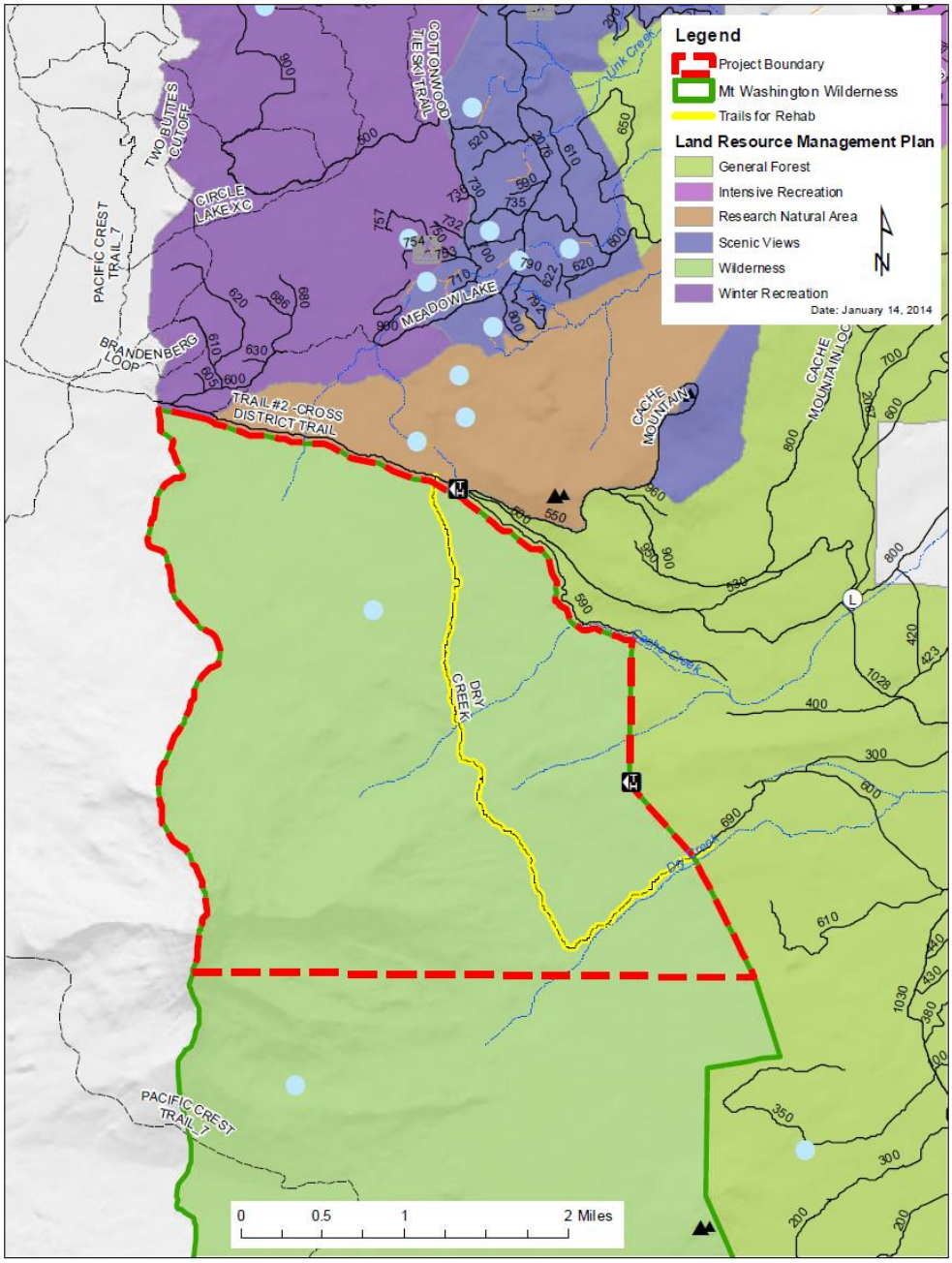

Figure 5. Mt. Washington Wilderness Area Project Area - Deschutes National Forest Land and Resource Management Plan - Land Allocation Map

Northwest Forest Plan

In addition to management direction found in the LRMP, the project area is managed under the Northwest Forest Plan (NWFP). The NWFP amended the LRMP in 1994. The project area contains three NWFP land allocations, including a Late Successional Reserve (See Figures 6 and 7).

Matrix: The Matrix consists of areas where most timber harvest and other silvicultural activities would be conducted, according to standards and guidelines. Most scheduled timber harvest takes place in the matrix. The Bear Valley trail head which is located on the southern end of the project area in Mt. Jefferson Wilderness is located within Matrix land allocation.

This project does not involve timber harvest or modify the Bear Valley trail head or surrounding Matrix lands.

Late Successional Reserve (LSR): The objective of the LSR is to protect and enhance conditions of late-successional and old-growth forest ecosystems which serve as habitat for late successional and old-growth related species including the northern spotted owl. Small pockets of LSR are located around Jefferson Lake and Brush Creek trail heads on the boundary of Mt. Jefferson Wilderness and the project area. Additional pockets of LSR are located around Hortence Lake and Dry Creek trail heads on the boundary of Mt. Washington Wilderness and the project area.

This project does not modify LSR components at any of these trail heads.

Congressionally Reserved: Mt. Jefferson and Mt. Washington Wilderness areas are Congressionally Reserved lands which make up the majority of the project area.

Figures 6 and 7 shows the land allocations in and around the project area under the NWFP.

The acres in the project area by the NWFP land allocation are shown in Table 2.

Table 2. NWFP Allocations in the Mt. Jefferson and Mt. Washington Trails Project Area.

NWFP Management Allocations	Acres
Late Successional Reserve	11
Matrix	1,098
Congressionally Reserved	28,707
Total	29,816

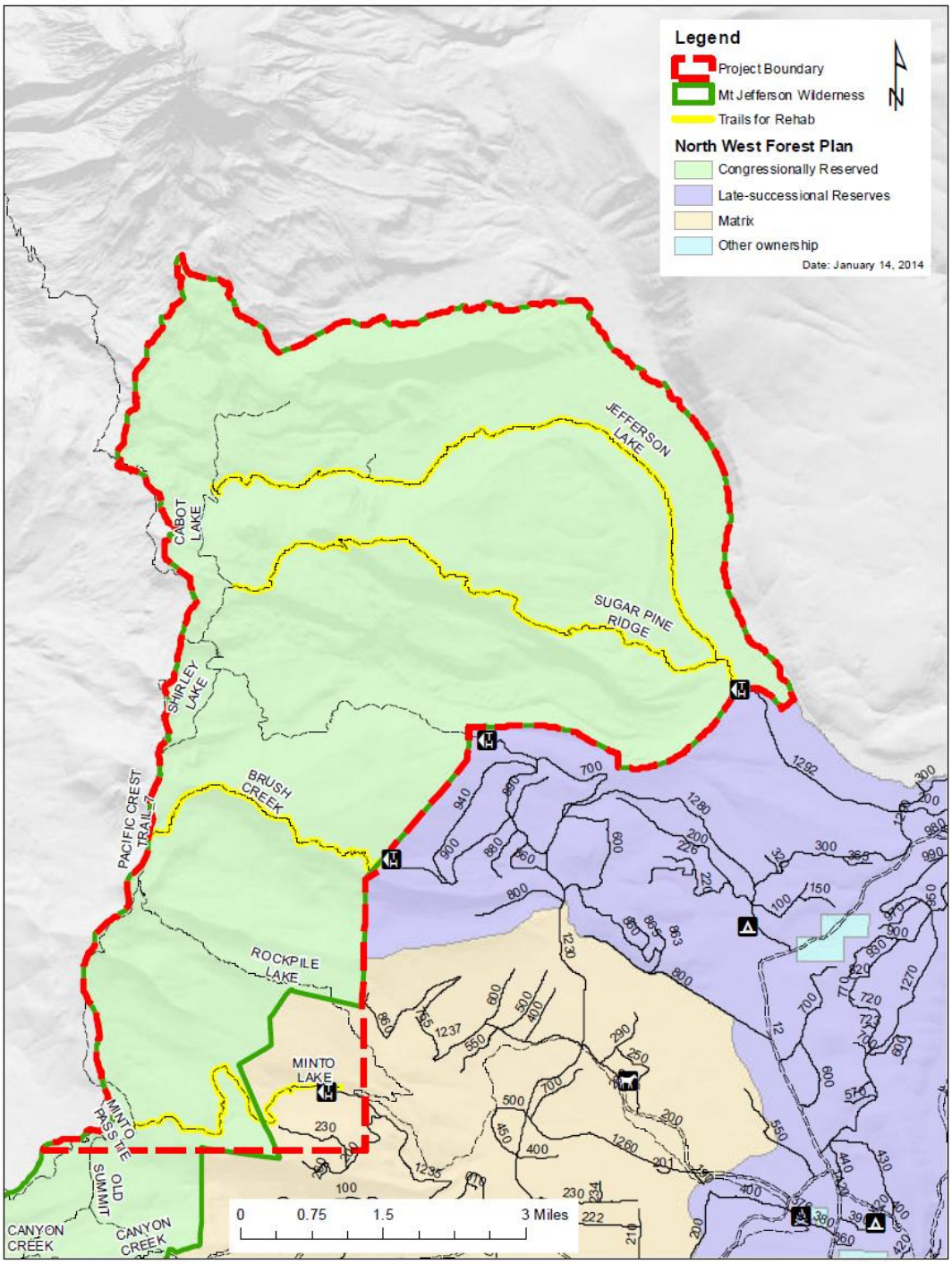

Figure 6. Mt. Jefferson Wilderness Project Area Northwest Forest Plan Allocation

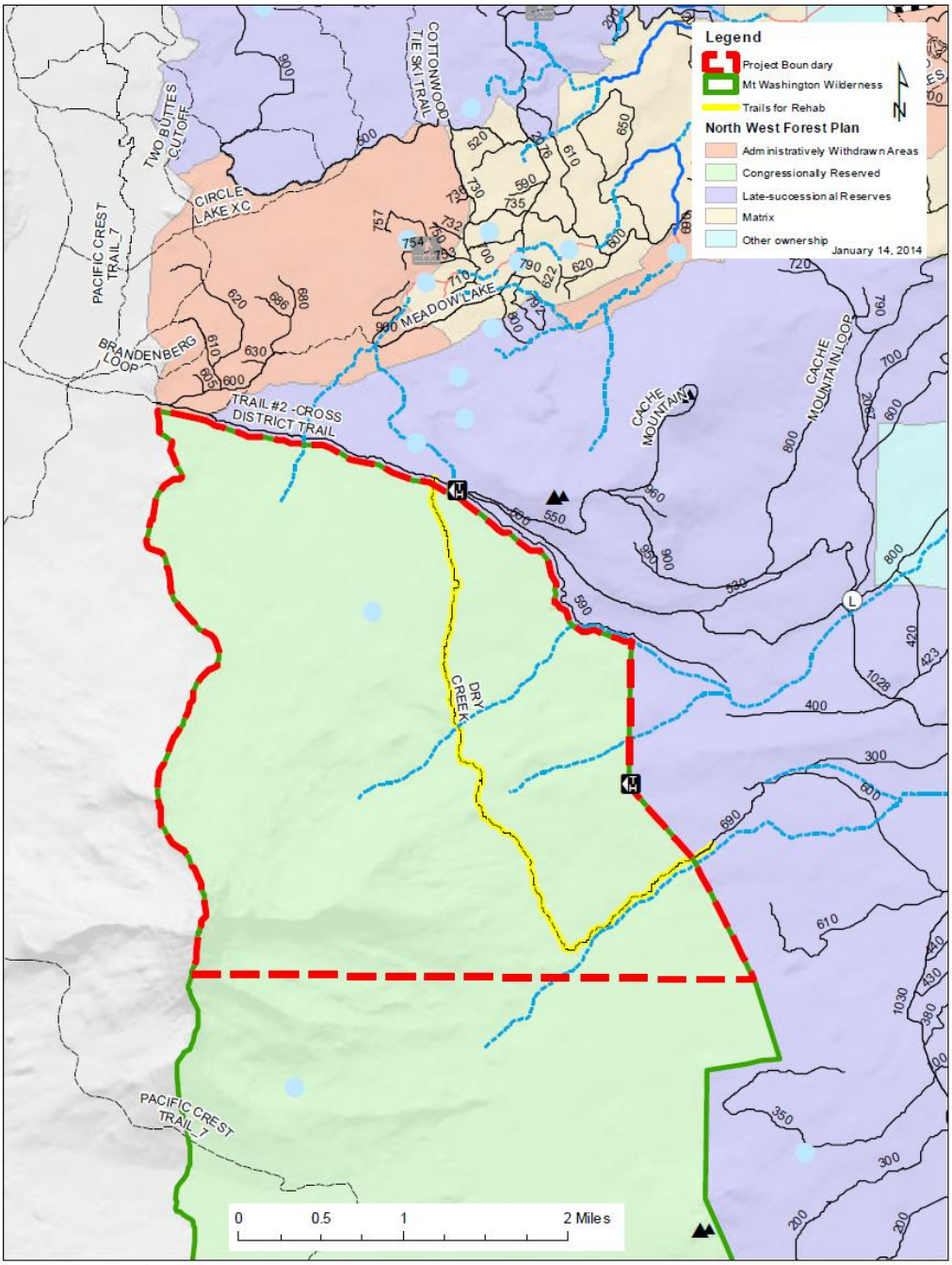

Figure 7. Mt. Washington Wilderness Project Area - Northwest Forest Plan Allocation

Other Documents Used in Project Planning

The Metolius Watershed Analysis completed in 1996 was updated in 2004 to document environmental changes associated with the B and B fire of 2003, provides for a general understanding of the ecological conditions and processes within the 14 sub-watersheds that comprise the Metolius Basin analysis area. The information contained in the watershed analysis serves as a guide for land management planning and makes recommendations for future projects based on the current landscape condition. In this regard it serves as a basis for project level planning. The watershed analysis provides an opportunity to synthesize and integrate trends and ecosystem risks.

***Revised Recovery Plan for the Northern Spotted Owl* (*Strix occidentalis caurina*)** was completed in June 2011 by the U.S. Fish and Wildlife Service. The goal of the plan is to improve the status of the species so it can be removed from protection under the Endangered Species Act (ESA). The plan established a series of Critical Habitat Units (CHU) across the range of the northern spotted owl. The project area is located in Critical Habitat Unit (CHU) 7: East Cascades North #8 (ECN 8).

The recovery strategy has four basic steps: 1) completion of a rangewide habitat modeling tool; 2) habitat conservation and active forest restoration; 3) barred owl management; and 4) research and monitoring. In addition, there are three recovery objectives: 1) spotted owl populations are sufficiently large and distributed such that the species no longer requires listing under the ESA; 2) adequate habitat is available for spotted owls and will continue to exist to allow the species to persist without the protection and 3) the effects of threats have been reduced or eliminated such that spotted owl populations are stable or increasing and spotted owls are unlikely to become threatened again in the foreseeable future.

The recovery plan and the critical habitat final rule of December 2012 and implemented in January 2013, was used to guide project design to eliminate or reduce impacts to the northern spotted owl.

Record of Decision and Standards for Amendments to the Survey and Manage, Protection Buffers, and other Mitigation Measures Standards and Guidelines was completed in January 2001 by the Forest Service and the Bureau of Land Management. The Record of Decision (ROD) amended a portion of the Northwest Forest Plan by adopting new standards and guidelines for Survey and Manage, Protection Buffers, and other mitigation measures for various plant and animal species.

The 2001 ROD was used to determine potential effects to Survey and Manage Species found in the project area. The project is in compliance with the 2001 ROD.

Forest Service Manual Direction

United States Department of Agriculture, Forest Service Manual 2300, Chapter 2323

Forest Service Manual (FSM) 2300, Chapter 2323 – Wilderness management was approved in 2006 and establishes agency wide management policy for Wilderness. Subsection 2323.11 through 2323.13f address recreation and the types of recreation opportunities that are prescribed within Wilderness. This policy establishes that Wilderness should allow public use and enjoyment and that these areas provide outstanding opportunities for solitude or primitive and unconfined types of recreation. The agency is directed to maximize visitor freedom within Wilderness, but apply controls when they are necessary to protect the wilderness resource and indirect measures have failed. Additionally, trail design, construction and maintenance can occur, but need to meet the objectives described in the Forest Plan. Chapter 2323.13f also states that trails should be designed so that non-motorized/mechanical equipment can be used for construction and maintenance.

United States Department of Agriculture, Forest Service Manual 2300, Chapter 2353.25

Forest Service Manual 2300, Chapter 2353 – National Forest system trails was approved in 2008 and establishes agency policy for trail design, construction, maintenance and management. FSM 2353.25 allows for trail decommissioning when alternative routes are available.

United States Department of Agriculture, Forest Service Handbook, chapter 2309.18, section 14.2.

Forest Service Handbook, Chapter 2309.18 establishes agency policy relating to defining trail classification, design criteria and maintenance objectives.

Other Laws, Regulations and Policy

The following is a brief explanation of other laws, regulations and policy that apply to the Mt. Jefferson and Mt. Washington Wilderness Trails Project.

The Wilderness Act of 1964

This Act initially protected 54 wilderness areas (9.1 million acres) by withdrawing them from standard multiple use management and established a process for adding new lands to the National Wilderness Preservation System. Lands classified as wilderness through the Wilderness Act could be under jurisdiction of the Forest Service, National Park Service, or Fish and Wildlife Service (The Bureau of Land Management did not manage wilderness until the passage of the Federal Land Policy and Management Act in 1976). With some exceptions, prohibitions include closure to motorized and mechanized vehicles, timber harvest, new grazing and mining activity, or any kind of development.

The project meets the intent of the 1964 Wilderness Act.

The American Antiquities Act of 1906

The American Antiquities makes it illegal to appropriate, excavate, injure, or destroy any historic, prehistoric ruin or monument, or any object of antiquity, situated on lands owned by the Government of the United States, without permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated.

The project complies with The American Antiquities Act of 1906.

The National Historic Preservation Act of 1966, as amended

The National Historic Preservation Act requires Federal agencies to consult with American Indian Tribes, State and local groups before nonrenewable cultural resources, such as archaeological and historic structures, are damaged or destroyed. Section 106 of this Act requires Federal agencies to review the effects project proposals may have on the cultural resources in the Analysis Area.

The project complies with The National Historic Preservation Act of 1966. No known Heritage sites would be affected by the project.

The Endangered Species Act of 1973

The purposes of this Act are to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered and threatened species, and to take such steps as may be appropriate to achieve the purpose of the treaties and conventions set forth in subsection (a) of this section." The Act also states "It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve

endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act".

Effects to threatened, sensitive, and endangered species are documented in the wildlife section of the environmental assessment.

The National Environmental Policy Act (NEPA)

The purposes of this Act are "To declare a national policy which will encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nations; and to establish a Council on Environmental Quality" (42 U.S.C. Sec. 4321). The law further states "it is the continuing policy of the Federal Government, in cooperation, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the present and future generations of Americans.

This law essentially pertains to public participation and disclosure, environmental analysis, and documentation.

The Mt. Jefferson and Mt. Washington Wilderness Trails environmental assessment followed the format and content requirements of environmental analysis and documentation. The entire process of preparing this environmental assessment was undertaken to comply with NEPA. Cumulative effects were assessed and displayed where they occur in the manner most informative and logical to display. Also, the depth of analysis was tailored to the degree of effect. In many instances within this analysis, past and present activities, including timber sales, were included in the existing condition. Foreseeable actions were also addressed if there was a proposed action and if it is in the public domain.

The Migratory Bird Treaty Act of 1918

The purpose of this Act is to establish an international framework for the protection and conservation of migratory birds. The Act makes it illegal, unless permitted by regulations, to "pursue, hunt, take, capture, deliver for shipment, ship, cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, including in this Convention…for the protection of migratory birds…or any part, nest, or egg of any such bird" (16 USC 703). The original 1918 statute implemented the 1916 Convention between the United States and Great Britain (for Canada). Later amendments implemented treaties between the Unites States and Mexico, Japan, and the Soviet Union (now Russia).

Effects to bird species listed under the Migratory Bird Treaty Act are described in the wildlife section of the environmental assessment.

Migratory Bird Executive Order 13186

On January 10, 2001, President Clinton signed an Executive Order (E.O. 13186) titled "Responsibilities of Federal Agencies to Protect Migratory Birds." This E.O. requires the *"environmental analysis of Federal actions, required by NEPA or other established environmental review processes, evaluates the effects of actions and agency plans on migratory birds, with emphasis on species of concern."*

The Mt. Jefferson and Mt. Washington Wilderness Trails environmental assessment is in compliance with Executive Order 13186.

Executive Order 13112 (invasive species)

This 1999 order requires Federal agencies whose actions may affect the status of invasive species to identify those actions and: "(i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species… (iii) monitor invasive species populations… (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded;…(vi) promote public education on invasive species… and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species… unless, pursuant to guidelines that it has prescribed, the agency had determined and made public… that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions."

Effects to invasive plant species and their control are documented in the botany section of the environmental assessment.

The Clean Water Act, as amended in 1977 and 1982

The primary objective of this Act is to restore and maintain the integrity of the Nation's waters. This objective translates into two fundamental national goals: 1) Eliminate the discharge of pollutants into the nation's waters; and 2) Achieve water quality levels that are fishable and swimmable. This Act establishes a non-degradation policy for all federally proposed projects. Under Section 303(d) of the Clean Water Act, the State has identified water quality-limited water bodies in Oregon.

Effects to Riparian Reserves and compliance with the Aquatic Conservation Strategy (ACS) are described in the hydrology section of the environmental assessment.

Inventoried Roadless Areas (IRA)

The project does affect any Inventoried Roadless Area (see proposed action map). There would be no new road or temporary road construction in any Inventoried Roadless Area.

Purpose and Need for Action

The purpose of the project is to provide for public health and safety, and an enjoyable recreation experience for the public while protecting and enhancing Wilderness character and developing a sustainable Wilderness trail system.

There is a need to change the Trail Class for the Jefferson Lake and Brush Creek trails and decommission the Sugar Pine Ridge, Minto Lake and Dry Creek trails in the Mt. Jefferson and Mount Washington Wilderness areas. This action is necessary to enhance the wilderness character, reduce the amount trail maintenance to a level that can be managed by Forest Service crews and volunteers, and to provide desirable and sustainable recreation experiences. The Dry Creek and Hortense Lake trailheads would also be closed.

This action would accomplish the following:

A. Ensure that existing unmaintained trails do not cause undesirable environmental effects to the Wilderness landscape through uncontrolled erosion and other impacts.

B. Maintain Wilderness Character by eliminating duplicated system trails and providing the full range of Wilderness recreation experiences as described in the Deschutes and Willamette National Forest Land Management Plan Wilderness Resource Spectrum, including reducing PAOT in parts of the Wilderness that are above the established threshold.

C. Enhance health and safety for Wilderness travelers through improved maintenance and clear communication of the condition/status of system Wilderness travel routes.

D. Effectively use limited agency and volunteer resources to maintain system trails to standard.

Proposed Action

The Forest Service proposes to change the Trail Class of two Forest Service system trails located within Mt. Jefferson Wilderness from their current status as Trail Class 3 to Trail Class 1. Additionally, three Forest Service system trails currently inventoried as Trail Class 3 have been identified for decommissioning. Of the trails identified for decommission, two are located within Mt. Jefferson Wilderness and the other is located within Mt. Washington Wilderness.

Two Mt. Washington Wilderness trailheads, Dry Creek and Hortense Lake, would be closed. There are currently no facilities at either of these trailheads. The trailhead locations would be removed from maps and other publications.

The proposed action would authorize the Forest Service to update mapping products with accurate field conditions, install signs at trail heads and termini of Trail Class 1 trails indicating their primitive condition, remove all signs on decommissioned trails, and remove all signs and facilities at closed trailheads. Table 3 describes in detail the activities associated with the proposed action.

Table 3. Comparison of Existing Condition and the Associated Changes with the Proposed Action.

Trail Information	Existing Structure or Condition	Proposed Action
Mt. Jefferson Wilderness Area Minto Lake trail (#4006) Length – 4 miles	Minto Lake trail is currently a Trail Class 3 trail. Minto Lake trail duplicates trail access provided by the Rockpile Lake trail and the Summit Lake trail. Minto Lake trail shares a trail head with the Rockpile Lake trail and also serves as the most northern portion of the Metolius Windigo trail. Minto Lake trail is poorly designed in several places and continues to be a maintenance challenge as the trail travels through wetlands and portions of the trail were burned. Minto Lake trail is not critical to any loop options or access points.	-Decommission • Remove all related trail signs, bridges and other trail structures such as metal culverts. • Disguise and block trail to discourage future use with natural materials such as rocks, downed trees, shrubs and plant material. Emphasize this work on the beginning and ending 500 feet of trail • Stabilize trail tread using oversized drainage features at key locations (steep trail grades, spring areas, wet areas and or stream crossings) throughout the trail designed to abate erosion processes and allow the trail bed to re-fill over time. • Re-contour cut slopes as needed by pulling the fill slope back into the trail tread. • Aerate the trail tread (emphasis on the 500' of trail tread at the beginning and terminus of the trail. Transplant native plants into the trail tread at key locations to assist with trail tread revegetation).

Trail Information	Existing Structure or Condition	Proposed Action
Mt. Jefferson Wilderness Area Brush Creek trail (#4004) Length – 4.1 miles	Brush Creek trail is currently a Trail Class 3 trail. Brush Creek trail is another east/west access route. Similar access is provided by the Rockpile Lake trail and the Shirley Lake trail. Fire regenerated vegetation, light use and other natural features have made portions of this trail difficult to maintain and follow. The Brush Creek trail does have a small segment of unique trail that cannot be traveled safely by stock. .	Change Trail Class to a 1 Trail Class 1 Standards: • Tread width = 0''-12'' and may be intermittent. • Tread Surface = Native material and may be continuously rough • Protrusions may be common and reach up to 24'' • Obstacles are allowed in the trail tread and should not exceed 24'' in height • Grades can be between 5% - 25% Trail prism should be 6' wide and vegetation may encroach within the prism

Trail Information	Existing Structure or Condition	Proposed Action
Mt. Jefferson Wilderness Area Sugar Pine Ridge trail (#4002) Length – 6.9 miles	The Sugar Pine trail has mostly been reclaimed by early seral vegetation as a result of wildfire activity. This trail provided the southern portion of the Jefferson Lake/Sugarpine Ridge Loop option. The Sugarpine Ridge trail departs from Jefferson Lake trail head and then gains the summit of Sugarpine Ridge and eventually intersects with the Cabot Lake trail where it passes Junction Lake.	-Decommission • Remove all related trail signs, bridges and other trail structures such as metal culverts. • Disguise and block trail to discourage future use with natural materials such as rocks, downed trees, shrubs and plant material. Emphasize this work on the beginning and ending 500 feet of trail • Stabilize trail tread using oversized drainage features at key locations (steep trail grades, spring areas, wet areas and or stream crossings) throughout the trail designed to abate erosion processes and allow the trail bed to re-fill over time. • Re-contour cut slopes as needed by pulling the fill slope back into the trail tread. • Aerate the trail tread (emphasis on the 500' of trail tread at the beginning and terminus of the trail. Transplant native plants into the trail tread at key locations to assist with trail tread revegetation).

Trail Information	Existing Structure or Condition	Proposed Action
Mt. Jefferson Wilderness Area Jefferson Lake Trail (#4001) Length - 9.1 miles	Jefferson Lake trail has historically been a lightly used trail with some notable features including Old Growth Douglas Fir, Lava Fields and is the most northern trail on Deschutes National Forest's portion of Mt. Jefferson Wilderness area. Jefferson Lake is the main access route to Jefferson Lake, Patsy Lake and Table Lake. It is possible to use Jefferson Lake to connect to Carl Lake, Shirley Lake and Pacific Crest National Scenic Trail.	Maintain Jefferson Lake trail at Trail Class 3 from the trail head to the prominent lava flow near the historic intersection of Jefferson Lake trail and Sugar Pine Ridge trail (.7 miles). After Jefferson Lake trail crosses the prominent lava flow, change the Trail Class to 1 until the trail reaches Patsy Lake where the trail system providing access to Carl and Table Lakes would be maintained at its current Trail Class 3 (8.4 miles). Trail Class 1 standards: • Tread width = 0''-12'' and may be intermittent. • Tread Surface = Native material and may be continuously rough • Protrusions may be common and reach up to 24'' • Obstacles are allowed in the trail tread and should not exceed 24'' in height • Grades can be between 5% - 25% Trail prism should be 6' wide and vegetation may encroach within the prism

Trail Information	Existing Structure or Condition	Proposed Action
Mt. Washington Wilderness Area Dry Creek Trail (#4050) Length –4.8 miles	Permit data and field observations suggest the Dry Creek trail experiences very low use, and is mostly used during the hunting season. This trail has not been maintained to standard since 2004, experiences heavy blow down and is very low on the trail maintenance priority list.	-Decommission • Remove all related trail signs, bridges and other trail structures such as metal culverts. • Disguise and block trail to discourage future use with natural materials such as rocks, downed trees, shrubs and plant material. Emphasize this work on the beginning and ending 500 feet of trail • Stabilize trail tread using oversized drainage features at key locations (steep trail grades, spring areas, wet areas and or stream crossings) throughout the trail designed to abate erosion processes and allow the trail bed to re-fill over time. • Re-contour cut slopes as needed by pulling the fill slope back into the trail tread. • Aerate the trail tread (emphasis on the 500' of trail tread at the beginning and terminus of the trail. Transplant native plants into the trail tread at key locations to assist with trail tread revegetation).

Decision Framework

The Responsible Official will answer the following questions based on the environmental analysis:

- Whether the Proposed Action will proceed as described, as modified, or not at all.
- What resource protection measures and monitoring requirements will be applied to the project.

For this decision, the District Ranger is the Responsible Official.

Public Involvement

The proposal was listed in the Schedule of Proposed Actions in the spring of 2013. The proposal was provided to the public and other agencies for scoping beginning on May 22nd, 2013. The scoping letter was sent to the Confederated Tribes of Warm Springs, Oregon Wild, Central Oregon Backcountry Horsemen, Oregon Equestrian Trails, Wild Wilderness, Friends of Metolius, Pacific Crest Trail Association and other interested individuals. In addition, as part of the public involvement process, the agency had scoped on a different version of this project in 2012. After reviewing the scoping comments, a stake holder meeting was held in Sisters, Oregon on April, 30th 2012. After the stake holder meeting, leadership staff from Deschutes National Forest participated in field trips to several of the sites included in proposed action. At that time participants reviewed scoping/stakeholder comments and on-the-ground conditions.

Written comments were received from 20 individuals or organization representatives in response to the scoping effort. A response to comments is part of the project record. No key issues were identified that would generate a second action alternative.

Summary of Comments

Scoping comments revealed a mix of support, opposition and five suggested alternatives. The alternatives suggested included converting all proposed trails from Trail Class 3 to Trail Class 1, using motorized equipment for trail reconstruction, placing all the proposed trails into a "storage" status, installing "travel at your own risk" signs on the proposed trails, and building a new connector trail from Cabot Lake trail head to Jefferson Lake trail head. Additional comments discussed concerns about historic values associated with the proposed trails, implementing additional wilderness regulations, and the value of low elevation trails for early season hiking.

Project Record

This environmental assessment herby incorporates by reference the Project Record (40 CFR 1502.21). The project record contains the Specialists Reports and other technical documentation used to support the analysis and conclusions in this environmental assessment. A summary of the Specialists reports in adequate detail to support the decision rationale and appendices provide supporting documentation for the effects analysis are contained in this environmental assessment.

Incorporating these Specialists Reports and the project record implement the Council on Environmental Quality (CEQ) Regulations that agencies should reduce NEPA paperwork (40 CFR 1500.4), that the document shall be "analytic rather than encyclopedic," and that the document "shall be kept concise and no longer than absolutely necessary" (40 CFR 1502.0). The objective is to furnish adequate site-specific information to demonstrate a reasoned consideration of the environmental impacts of the alternatives and how these impacts can be mitigated without repeating detailed analysis and background information available elsewhere. The Project Record is available for review at the Sisters Ranger District office, Pine Street and Highway 20, Sisters, Oregon, Monday through Friday 8:00 a.m. to 4:30 p.m.

Issues

The Forest Service separated the issues into two groups: key issues and non-key issues. Key issues were defined as issues identified during public scoping that suggested an alternative to meeting the purpose and need for action. Non-key issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; 4) conjectural and not supported by scientific or factual evidence or 5) routine analysis issues that would be discussed in the effects analysis section of the environmental assessment. A list of non-key issues and reasons regarding their categorization may be found in the project record.

No key issues were identified during scoping.

Analysis Issues

The analysis issues, described below, would be addressed in the effects section of this document as a way to compare alternatives. These analyses are important for providing the responsible official with complete information about the effects of the project.

Hydrology

Issue: The action alternative has the potential to affect water quality.

Measure: Measures include soil productive capacity, vegetation regeneration, and energy of channelized flows during storm events and snow melt periods, natural flow capacity of spring seeps and the amelioration of trail tread over time.

Soils

Issue: The action alternative has the potential to increase the amount and distribution of soil disturbance

Measure: Measures used to address project effects include changes in extent of soil disturbance following action alternative activities.

Fisheries

Issue: The action alternative has the potential to disturb bull trout from an increase of sediment delivery to streams during trail decommissioning activities.

Measure: The amount and duration of work done in and over stream channels.

Wildlife

Issue: The action alternative has the potential to affect wildlife habitat, dispersal and reproduction.

***Measure*:**

- Habitat
    - Effects/Impacts to nesting or denning habitat
    - Effects/Impacts to dispersal/connectivity habitat
- Noise Disturbance During the Reproductive Season
    - Timing, duration, and equipment used during project implementation

Botany

Issue: The action alternative has the potential to affect habitat for rare plant species or increase the risk of invasive plant species.

Measure: Probability of detrimental impacts to plants as estimated by amount and degree of ground disturbance in populations or suitable habitat. The risk of invasive plants introduction or spread as defined by the Risk Assessment.

Heritage

Issue: The action alternative has the potential to affect heritage properties.

Measure: The number of cultural resource sites affected by the action alternative.

Recreation

Issue: The action alternative has the potential to affect recreation resources by modifying the trail class of two system trails and decommissioning three others within the Mt. Jefferson and Mt. Washington Wilderness Areas.

Measure: Number of system trail miles affected by the decision.

Issue: The action alternative has the potential to displace use from trails that are removed or maintained at lower standards, to trails that are better maintained. This may reduce wilderness values such as solitude on the better maintained trails. Increased use also has the potential to increase resource damage to wilderness destinations.

Measure: People At One Time (PAOT) within a certain Wilderness Resource Spectrum (WRS) is the approved way to express capacity within a wilderness. Resource damage is measured in number of campsites in an area, square footage of campsites, campfire rings, and tree damage.

Issue: The action alternative has the potential to encourage users to build illegal trails into these areas.

Measure: Number of illegal trail miles constructed.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the Mt. Jefferson and Mt. Washington Wilderness Trails Project. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative and some of the information is based upon the environmental, social and economic effects of implementing each alternative.

Alternatives

Alternative 1 - No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. Current conditions of the trails identified in the proposed action would accumulate increased dead fall, expanded soil erosion issues, cause trail maintenance associated with intense fire regenerated brush, and potentially increase public safety and search and rescue issues.

Alternative 2 - The Proposed Action

The Proposed Action

The Sisters Ranger District of the Deschutes National Forest proposes to change the Trail Class of two trails and decommission two trails within the Mt. Jefferson Wilderness Area and the decommission one trail in Mt. Washington Wilderness area. Wilderness area trails proposed for a change in Trail Class include the portion of the Jefferson Lake trail (#4006) northwest of the prominent lava flow to Patsy Lake and Brush Creek trail (#4004). These trails would have their Trail Class changed from Trail Class 3 to Trail Class 1 (See Appendix A for definitions). The combined distance of the Jefferson Lake and Brush Creek trails is approximately 13.2 miles.

Minto Lake (Trail #4006) and Sugar Pine Ridge trail (#4002) within Mt. Jefferson Wilderness and the Dry Creek trail (#4050) within the Mt. Washington Wilderness area are proposed for decommissioning. These three trails equal approximately 15.7 miles of trail. Decommissioning of these trails would result in: (1) the removal of signs associated with the trails; (2) stabilize trail tread using oversized drainage features at key locations (steep trail grades, spring areas, wet areas and or stream crossings) throughout the trail designed to abate erosion processes and allow the trail bed to re-fill over time; (3) removal of any structures, such as bridges, culverts and sign posts that are associated with the trails; (4) restoration work at the origin and terminus of each trail to encourage rehabilitation of the trails including transplanting; adding local debris and aeration of the trail tread surface for up to 500 feet; and (5) Re-contour cut slopes as needed by pulling the fill slope back into the trail tread.

Two trailheads in the Mt. Washington Wilderness, Dry Creek/Hortense Lake, (#4050) would be closed. There are currently no facilities at either of these trailheads. Management actions would remove the trailheads from maps and other publications.

Alternatives Considered but Not Analyzed in Detail

The public scoping process identified five potential alternatives to the proposed action. These five alternatives were considered by the interdisciplinary team but not were not analyzed in detail.

Convert all proposed trails from Trail Class 3 to Trail Class 1

This alternative was suggested during public scoping. This alternative does not meet the purpose and need of maintaining Wilderness Characteristics and minimize maintenance issues associated with maintaining trails within Wilderness.

Trail Class 1 trails are the most primitive trail category available and allows for trails to be less frequently maintained and is intended to provide a primitive recreation opportunity unique to designated Wilderness. Trail Class 1 trails have a prescribed maintenance schedule. The trails in the proposed action are currently identified as Trail Class 3 trails, but have not been maintained to the Trail Class 1 standard since 2006.

Additionally, the LRMP prescribes the decommissioning of duplicate trails over time. Duplicity in trail access refers to destinations that are served by two or more named and numbered trails.

Use mechanical or motorized/mechanized equipment to maintain the trails outlined in the proposed action.

This alternative was suggested during public scoping. This alternative does not meet the purpose and need of maintaining Wilderness Character.

The use of mechanical or motorized equipment is prohibited by the Wilderness Act of 1964 and through U.S. Forest Service Wilderness Policy. The Wilderness Act of 1964 states "except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area." FSM 2326.1 provides specific direction on the use of mechanized and/or motorized equipment within Wilderness areas stating that trails within wilderness should be maintained by non-motorized methods.

Convert proposed action trails to Trail Class '0' / trail storage concept.

This alternative was suggested during public scoping. This alternative does not meet the purpose and need to maintain Wilderness Character, minimize the cost of trail maintenance, enhance safety for Wilderness travelers, and mitigate the environmental effects of unmaintained trails.

Presently, the proposed trails are in severe disrepair, are extremely difficult to find and follow, are eroding and have resulted in several Search and Rescues over the past decade. In 2012 a different version of this project was sent out for scoping. As a result, a stake holder meeting was held in the spring of 2012 to discuss the project and find an approach to the proposed action which detailed a full decommission of all the current proposed action trails. During the stakeholder meeting some of the participants requested that we place the proposed action trails into "storage." The intent of placing the proposed action trails into "storage" would put them into a no maintenance status until natural conditions became more favorable for regular trail maintenance. After the stakeholder meeting the Region Six Trails Specialist verified that placing trails into storage is not allowed and that switching a Trail Class or decommissioning requires an Environmental Analysis. Furthermore, taking no action does not preclude the proposed action trails from needing NEPA analysis to re-open and resume regular trail maintenance on the proposed action trails.

Install 'travel at your own risk' signage at the beginning and terminus of each of the proposed action trails.

This alternative was suggested during public scoping. This alternative does not meet the purpose and need of mitigating the environmental impacts of unmaintained trails and enhancing health and safety for Wilderness travelers.

Presently each of the trails outlined in the proposed action are signed at the beginning and terminus as

"not maintained." Each of the proposed action trails are obscured by severe early seral brush, have numerous tread and drainage issues, have intense tree fall, and are missing directional signs. Over the past decade the condition of the proposed action trails have been linked to several Search and Rescue events administered by Jefferson County Sheriff's department.

Furthermore, Wilderness is not a risk managed portion of the landscape. Risk is inherent to Wilderness recreation. Wilderness provides visitors the opportunity to interact and travel within an unconfined environment where people use their experience, knowledge, and decision making skills to negotiate the numerous hazards which persist in Wilderness. When a visitor enters the Wilderness landscape they are essentially choosing to travel at their own risk.

Design, construct and maintain a Cabot Lake trail / Jefferson Lake trail connector using a decommissioned road system between the two trail heads.

Originally, this alternative was part of the first proposed action as a mitigation measure to maintain loop opportunities in Mt. Jefferson Wilderness. Changed conditions have resulted in several decommissioned roads placing this option beyond the purpose and need of the project and would require a NEPA analysis equivalent to what is required for constructing a new trail.

Resource Protection Measures Common to the Action Alternative

Resource protection measures are project design criteria and best management practices that would reduce or eliminate unwanted effects and ensure project activities are implemented to comply with all necessary Forest Plan standards and guidelines.

Resource protection measures are an integral part of project design and would be carried out through project implementation. The effectiveness of each resource protection measure is rated as ***high***, ***moderate***, or ***low*** to provide a qualitative assessment of the expected effectiveness the management activity could have on preventing and/or reducing impacts to resources. Effectiveness ratings are based on the following criteria: (i) literature; (ii) administrative studies (local or within similar ecosystems; and (iii) professional judgment.

- ***High***: Practice is highly effective (greater than 90%), meets one or more rating criteria, and documentation is available.
- ***Moderate***: Documentation shows that the practice is 75 to 90 percent effective; or logic indicates that the practice is highly effective, but there is no documentation. Implementation and effectiveness of this practice need to be monitored and the practice will be modified if necessary to achieve resource protection objectives.
- ***Low*****:** Effectiveness is unknown or unverified, and there is little to no documentation; or applied logic is uncertain and the practice is estimated to be less than 60 percent effectiveness. The practice is speculative and needs both effectiveness and validation monitoring.

The effects analysis in Chapter 3 is based on the implementation of the resource protection measures.

Resource protection measures include, but are not limited to, the following: Forest Plan goals, objectives, or standards and guidelines; project design criteria; best management practices; and Invasive Plant Prevention Practices.

Wildlife

- Northern Spotted Owl - Disruptive work activities will not take place within 0.25 miles (1.0 mile for blasting, 0.50 mile for helicopter) of any newly discovered nest sites between March 1 and September 30. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that spotted owls are non-nesting or that no young are present that year. Waivers are valid only until March 1 of the following year. (*High Effectiveness)*

- Woodpeckers and Raptors - In the event a nest is discovered within 0.25 miles of disturbing project activities, the following seasonal restrictions for raptors will be implemented. Disruptive work activities will not take place within 0.25 miles (1.0 mile for blasting, 0.50 mile for helicopter) of any newly discovered nest sites between March 1 and September 30. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that spotted owls are non-nesting or that no young are present that year. Waivers are valid only until March 1 of the following year (Table 4). (*High Effectiveness)*

Table 4. Raptor Species and Nesting Period Restrictions.

Species	Nesting Period Restriction	Buffer Distance Around Nest
Northern spotted owl	March 1–September 30	0.25 miles (1 mile for explosives)
Northern goshawk	March 1–August 31	
Cooper's hawk	April 15–August 31	
Sharp-shinned hawk	April 15–August 31	

Fisheries

- Removal of the log stringer bridge on Candle Creek at the Sugar Pine Ridge trail crossing may only occur during the instream work window from May 15-August 15 in order to protect spawning bull trout. (*High Effectiveness)*

Project Design Criteria from the Deschutes and Ochoco NF's Aquatic and Terrestrial Programmatic Biological Assessment (USDA FS 2010) shall be followed. The following PDC's apply to the project:

Large wood

- Do not remove standing/down wood from Riparian Reserves unless health and safety and/or forest health issues require treatment (as determined and confirmed by district silviculturist and fisheries biologist) to meet Aquatic Conservation Strategy. (*High Effectiveness)*
- Do not retard attainment of coarse down woody debris objectives within Riparian Reserves as determined by vegetation type within the immediate project site. (*High Effectiveness)*
- Do not retard attainment of in-stream wood objectives established in watershed analysis. The project will not retard attainment of a minimum of 20 pieces of large wood per mile that are at least 12 inches in diameter and 35 feet in length. (*High Effectiveness)*

Botany

- Discuss invasive plant prevention practices at force account crew or contractor pre-work sessions. (*High Effectiveness)*
- Minimize ground disturbance (*High Effectiveness)*
- Make sure equipment is clean (weed free) (*High Effectiveness)*.
- Minimize disturbance of existing vegetation. Revegetate with common local plant species from on-site. Avoid transplanting from riparian areas. (*High Effectiveness)*
- Incorporate invasive plant removal into trail maintenance work on Mt Jefferson trail *(Moderate effectiveness)*
- Include cheatgrass control at the Jefferson Lake trailhead corral in an Early Detection Rapid Response (EDRR) site analysis for 2014. (*High Effectiveness)*

Cultural Resources

- If any cultural resources are discovered during project implementation, all project related

activities in that area will cease immediately. Workers must immediately notify the onsite supervisor who will contact the Deschutes National Forest Archaeologist. One of the Forest archaeologists will initiate the consultation process as outlined in Section 800.13 of the Advisory Council on Historic Preservation's regulations 36 CFR Part 800. (*High Effectiveness)*

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives. See Table 5 for a comparison of alternatives.

Table 5. Comparison of Alternatives.

Resource	Alternative 1 – No Action	Alternative 2 – Proposed Action
Wildlife		
Gray wolf	No management actions would take place.	No effect to individuals or habitat.
Northern Spotted owl	No management actions would take place.	No effect to individuals, Nesting, Roosting, or Foraging (NRF) habitat, dispersal habitat, or connectivity. No effect to primary constituent elements of designated critical habitat.
North American wolverine	No management actions would take place.	No effect to individuals or habitat
Oregon spotted frog	No management actions would take place.	No effect to individuals or habitat.
Oregon spotted frog or proposed critical habitat	No management actions would take place.	No effect to individuals or habitat.
INVERTEBRATES		
American Marten	No management actions would take place.	No Impact
Elk and Mule Deer	No management actions would take place.	No Effect.
Heritage		
	No management actions would take place.	No historic properties would be affected.
Hydrology/Soils		
	Continued deterioration of trail treads on the wilderness trails being analyzed. Localized erosion and erosive overland and channelized flows on trail tread. Low potential for sedimentation to stream channels or effect water quality.	The decommissioning of trail would have a beneficial effect to the soil and hydrology resources.

Resource	Alternative 1 – No Action	Alternative 2 – Proposed Action
Botany		
Sensitive and Survey and Management Plant Species	No management actions would take place.	No Sensitive or Survey and Manage Species or their habitats are known to occur in the immediate areas affected by the project.
Invasive Plants	No management actions would take place.	The risk is moderate for invasive plants. Resource protection measures are required.
Fisheries		
Threatened Species: Bull Trout and Critical Habitat	No management actions would take place.	May effect, but is not likely to adversely affect bull trout. No effect on Bull Trout critical habitat.
R6 Sensitive - Redband Trout and Mid-Columbia River Steelhead Trout	No management actions would take place.	No effect
A Caddisfly	No management actions would take place.	May impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the species a caddisfly.
Aquatic Conservation Strategy (ACS)	No management actions would take place.	Project complies on all nine elements
Recreation		
Trails	Trail conditions would continue to deteriorate and travel will be difficult. Public safety would be jeopardized as these trails would still be on the map, even though they may be impassable.	Will result in changing the trail class on two trails within Mt. Jefferson Wilderness Area. Will result in two trails being decommissioned in Mt. Jefferson Wilderness and one trail within Mt. Washington Wilderness. Reduction in system trail miles.
Wilderness	Wilderness character may deteriorate as trails reduce the opportunity for solitude and PAOT may be above the established threshold in some areas.	Improved wilderness character and range of recreation opportunities prescribed by the Land Resource Management Plan, including reducing PAOT in parts of the Wilderness that are above the established threshold.

ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above. The information presented in this chapter summarizes and cites the specialist's reports that are found in the project analysis file (40 CFR 1502.21). The specialist's reports are incorporated by reference and are available at the Sisters Ranger District office, Sisters, Oregon.

Direct effects: Those effects that occur at the same time and in the same general location as the activity causing the effects.

Indirect effects: Those effects that occur at a different time or different location than the activity to which the effects are related.

Cumulative effects: Those effects that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

Cumulative Effects of Past, Present and Reasonably Foreseeable Actions

The project IDT identified past, present, and reasonably foreseeable action that might have cumulative impacts with the proposed action early in the analysis process. These actions are listed in the table below. Each resource area considered different mixes of these actions, depending on the cumulative effects boundary for the resource area and the resources affected. Only those past, present and reasonably foreseeable actions are considered, and only if those action are expected to have environmental effects that accumulate with the other project effects.

Table 6 provides a listing of past, present, and foreseeable actions that have the potential to overlap the project area. Because a project appears in this table it does not necessarily mean it has an additive effect because it may not be applicable for all resources. If there is a past, present, or foreseeable effect, it is disclosed in the individual resource area in the environmental consequences section of this environmental assessment.

Table 6. Past Actions and Events That Have Contributed to the Current Conditions in the Project Area.

Type of Action	General Description	Status/Timing
Past Vegetation and Fuels Management		
Fire Suppression	Suppression of fire starts from lightning and human caused fires (average 15 starts/year in the project area)	1900 to present
Wildfires		
B&B Fire Shadow Lake	90,769 acres 10,000 acres	2003 2011

Type of Action	General Description	Status/Timing
Recreation Developments		
Jefferson Lake, Cabot Lake, Brush Creek, Bear Valley, Dry Creek and Hortence Lake trail heads.	Trailhead locations to access the Mt. Jefferson and Mt. Washington Wilderness.	Developed in the 1960's
Metolius Windigo Trail Cross-district Trail, Jefferson Lake, Sugar Pine, Cabot Lake, Brush Creek, Rockpile, Minto Lake, Hortence Lake and Dry Creek trails	About 120 miles of trails from the headwaters of the Metolius River south to the southern boundary of the Deschutes National Forest. About 16 miles of these trails are in the project area.	1980
Dispersed Recreation Sites	Hundreds of dispersed recreation sites.	Managed since 1990's
Special Uses		
Permits	Regular use of trails, outfitters, and not for profit group activities.	Several permits for outfitter guiding and education within the area.

Effects Analysis for the Mt. Jefferson and Mt. Washington Wilderness Trails Project

The effects section is organized by resource area.

Hydrology and Soils

This environmental assessment incorporates by reference (as per 40 CFR 152.21) the Hydrology and Soils specialist report and other technical documentation used to support the analysis and conclusions of this environmental assessment. The entire report is in the project record which is located at the Sisters Ranger District office in Sisters, Oregon.

Alternative 1 – No Action Ecological trends

The No Action alternative would result in the continued deterioration of trail treads on the wilderness trails. Trail maintenance meant to improve trail conditions and reduce runoff and erosion associated with these existing system trails is unlikely to occur on a regular basis due to budget and logistical constraints. The Dry Creek trail would continue to have localized erosion on and off of the existing tread that could contribute sediment to the intermittent channel of Dry Creek during large sheet flow erosional events. The trail treads of the Minto Lake and Sugar Pine Ridge trails would continue to be susceptible to erosive overland and channelized flows on the trail tread that would have localized effects to soil productivity and stability in the area. However, the majority of these trail miles would be unlikely to contribute sediment to stream channels or effect water quality due to their locations on upland terrain. No 303(d) listed streams for water quality are located in the project area.

Alternative 2 – Proposed Action

Direct and Indirect Effects

The decommissioning of the Minto Lake, Sugar Pine Ridge and Dry Creek trails would have beneficial effects to the soil and hydrologic resources. Decommissioning of the trails would result in approximately 15.7 miles of trail, or nearly 3.8 acres of the soil resource, being returned to a productive capacity over time. The obliteration, aeration and disguise of the initial sections of trail would result in beneficial conditions for vegetation to grow and stabilize the soil in these areas. The installation of oversized drainage features on steep sections of the Sugar Pine Ridge trail would also benefit the soil and hydrologic resource by minimizing the extent and energy of channelized flows on the trail tread during rain storms or snow melt periods. The removal of a turnpike and French drain section of the Minto Lake trail would restore natural flows of a spring seep in the area. Existing vegetative re-growth on the more gentle sections of the Minto Lake and Sugar Pine Ridge trails would continue to help stabilize soil and minimize overland flows throughout these areas.

The change in Trail Class status for the Jefferson Lake and Brush Creek trails would affect nearly 13.2 miles of trail. The change in maintenance is likely to result in less user traffic on these trails and a slow amelioration of the trail tread over time into a less defined and less compacted condition. However, the reduced maintenance objective may result in localized erosion where drainage features were not maintained. Overall, these actions are likely to have a neutral effect on the soil and hydrologic resources.

Cumulative Effects

There are no other actions associated with the trails being proposed for decommissioning or for changes to Trail Class status that the direct effects incurred by these actions would be additive to. As a result, there would be no cumulative effects to the soil or hydrologic resources under the Proposed Action.

Fisheries

This environmental assessment incorporates by reference (as per 40 CFR 152.21) the Fisheries specialist report and other technical documentation used to support the analysis and conclusions of this environmental assessment. The entire report is in the project record which is located at the Sisters Ranger District office in Sisters, Oregon.

BULL TROUT - Salvelinus confluentus

USFWS Threatened Species and Critical Habitat (Middle Columbia Population)

Existing Population and Habitat

Bull trout have been documented in Candle Creek near the log bridge crossing for the Sugar pine Ridge Trail. Candle Creek is designated Critical Habitat at this location. Bull Trout spawning was observed in 2009 in this section of stream (Reischauer 2009). Only a few smaller juveniles have been documented in this section of Candle Creek prior to this. This section is not counted during annual spawning surveys as the majority of spawning takes place below the confluence with Cabot Creek approximately ½ mile downstream of the trail bridge. Candle Creek is an important spawning stream with 73 redds counted in 2013 from the mouth to Cabot Creek. All other trails to be decommissioned in this project are located several miles away from occupied bull trout habitat or bull trout critical habitat.

Alternative 1 – No Action Ecological Trends

There are no expected changes to a bull trout from current conditions and they are not expected to be present at or near the project area except in Candle Creek at the Sugar Pine Ridge Trail bridge crossing. No in-stream work would be done and no individuals would be disturbed or harmed. Effects to water quality and flow from trail maintenance, animals, and people using existing trails in the area would remain negligible since most people stay on the trails and trail work is meant to improve trail conditions and reduce runoff and erosion associated with these already existing system trails.

Alternative 2 – Proposed Action

Direct and Indirect Effects

No instream work would be performed where bull trout or critical habitat are located except for the removal of the single stringer log bridge over Candle Creek. This log is natural (not treated with wood preservatives) and would be moved from across the stream to the side of the stream but would remain in the Riparian Reserve to serve as downed wood for wildlife and stream benefit. Although the bridge would no longer serve as overhead cover this section of Candle Creek had sufficient instream wood before the B &B fire and Reischauer (2009) noted much more wood after the fire. Before the fire this reach of Candle Creek had 33 pieces of large wood/mile (medium and large size classes) and 44 pieces of small sized wood (Lovtang and Houslet 1996). The Northwest Forest Plan does not set a standard for large wood per/mile (USDA and USDI 1994). At the Sugar Pine Ridge Trail some disturbance could occur to individual bull trout when the log is pulled to one side of the creek. However this disturbance would likely only last an hour or two and suitable habitat exists immediately upstream or downstream should a fish decide to relocate. This would also occur outside of the spawning season so no disturbance to redds, or spawning adults would occur. No adverse effects are anticipated to downstream bull trout populations or their habitats from this project.

Cumulative Effects

Some disturbance effects could occur to individual bull trout at the Sugar Pine Ridge trail crossing from the removal of the log bridge, but there are no other planned projects in the Mount Jefferson Wilderness that would create measurable effects that would combine with this short term disturbance to generate a cumulative effect.

Determination

This project May Effect, but is Not Likely to Adversely Affect (NLAA) bull trout. The project will meet NWFP Standards and Guidelines. The project will have No Effect on Bull Trout Critical Habitat.

A CADDISFLY - Rhyacophila Chandleri

Forest Service Region 6 Sensitive Species

Existing Population and Habitat

This species of caddisfly is known only from Siskiyou Co., California, and Lane and Deschutes counties, Oregon. It is thought to be a rare species that is very patchily distributed, and apparently highly localized where it does occur (Wisseman pers. comm. in USDA and USDI 2005). Its range is thought to be in the Cascade Mountains of Oregon and California. It is associated with very cold, larger spring-fed streams (Wisseman pers. Comm. in USDA and USDI 2005). There is no specific information available on threats to this species or its habitat. Activities that degrade water quality or increase water temperatures would likely have negative impacts on this species (USDA and USDI 2005). This species was reportedly collected in 1982 from Tyee Creek near Devils Lake on the Deschutes National Forest, Bend Ranger District (Giersch 2002). This species may exist elsewhere on the forest in headwater spring habitats but sampling for marcroinvertebrates has mainly been limited to larger streams and river sections on the Sisters Ranger District and this species was not identified in those samples. It is possible this species could be present in Upper Candle Creek and an unnamed tributary to Bear Valley Creek.

Alternative 1 – No Action Ecological Trends

There are no expected changes to the A Caddisfly from current conditions and they are not expected to be present at or near the project area except in Candle Creek at the Sugar Pine Ridge Trail bridge crossing or possibly at an unnamed stream crossing that is a tributary to bear Valley Creek on the Minto Lake Trail No in-stream work would be done and no individuals would be disturbed or harmed. Effects to water quality and flow from trail maintenance, animals, and people using existing trails in the area would remain negligible since most people stay on the trails and regular trail maintenance is meant to improve trail conditions and reduce runoff and erosion associated with these already existing system trails.

Alternative 2 – Proposed Action

Direct and Indirect Effects

No instream work would be performed where A Caddisfly may occur except for the removal of the single stringer log bridge over Candle Creek and at the stream crossing on Minto Lake Trail. This log is natural (not treated with wood preservatives) and would be moved from across the stream to the side of the stream but would remain in the Riparian Reserve to serve as downed wood for wildlife and stream benefit. Although the bridge would no longer serve as overhead cover this section of Candle Creek had sufficient instream wood before the B and B fire and Reischauer (2009) noted much more wood after the fire. Before the fire this reach of Candle Creek had 33 pieces of large wood/mile (medium and large size classes) and 44 pieces of small sized wood (Lovtang and Houslet 1996). The Northwest Forest Plan does not set a standard for large wood per/mile (USDA FS 1994). At the Sugar Pine Ridge Trail some disturbance could occur to individual A Caddisflies when the log bridge and lumber bridges are removed. However this disturbance would likely only last an hour or two and major disturbance to the stream bottom would not occur. Suitable habitat for a Caddisfly exists upstream and downstream from these two trail crossing sites.

Cumulative Effects

Some disturbance effects could occur to individual A Caddisflies if they are present at the Sugar Pine Ridge Trail and Minto trail crossing from the removal of the bridges, but there are no other planned

projects in the Mount Jefferson Wilderness that would create measurable effects that would combine with this short term disturbance to generate a cumulative effect.

Determination

May Impact Individuals or Habitat (MIIH), but Will Not Likely Contribute to a Trend towards Federal Listing or Cause a Loss of Viability to the Species a caddisfly. The project will meet NWFP Standards and Guidelines.

REDBAND TROUT - Oncorhynchus mykiss

Forest Service Region 6 Sensitive Species

Existing Population and Habitat

Redband Trout have not been documented in Candle Creek through past snorkel or electrofishing surveys. Spawning has not been documented in Candle Creek and water temperatures may remain too cold during the spawning season. They could be present but infrequent in Candle Creek. If they are present most likely occupy the lower reach of Candle Creek near the mouth of the Metolius River and are at very low densities.

Alternative 1 – No Action Ecological trends

No in-stream work would be done and no individuals would be disturbed or harmed. Effects to water quality and flow from trail maintenance, animals, and people using existing trails in the area would remain negligible since most people stay on the trails and regular trail maintenance is meant to improve trail conditions and reduce runoff and erosion associated with these already existing system trails.

Alternative 2 – Proposed Action

Direct and Indirect Effects

It is highly unlikely that redband trout inhabit the section of Candle Creek where the log bridge is to be removed because they have never been documented in Candle Creek or Cabot Creek. Electrofishing and snorkel surveys have been performed on both streams. This species stronghold is in the Metolius River and other tributaries. Because redband trout are not expected to occur at the bridge removal site or anywhere in close proximity there would be no effect to this population.

Cumulative Effects

There are no expected effects to redband trout from this project and are no expected cumulative effects for this species.

Determination Summary

There will be No Effect to redband trout from this project. The project will meet NWFP Standards and Guidelines.

Conclusion

Consultation under the Endangered Species Act (ESA) on the effects of this project on threatened and endanged fish is covered under the biological assesment for this environmental assessment. Informal consultationon on the project was completed on November 21, 2013 with a phone call to Jennifer O'Reilly of the U. S. Fish and Wildlife Service. The analysis area for this project includes the Candle Creek and Canyon Creek Subwatersheds. By following the Resource Protection Measures outlined in this EA, the following effects determinations were reached:

- Bull trout – **Not Likeley to Adversely Effect**
- Bull trout critical habitat- **No Effect**

The following effects determinations were made in this Biological Evaluation for sensitive aquatic species supected in the project area:

- A caddisfly- **May Impact Individuals or Habitat**, but Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species.
- Interior Columbia Basin redband trout – **No Impact**

Aquatic Conservation Strategy (ACS) Objectives

The Northwest Forest Plan directs the Forest Service to manage lands within the range of the northern spotted owl according to nine ACS objectives in order to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands (USDA, Forest Service, Northwest Forest Plan, 1994)

The following narrative describes the effects of the Mt. Jefferson and Mt. Washington Wilderness Trails Project with the Aquatic Conservations Strategy Objectives:

ACS Objective 1: Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.

The project complies with this objective by reducing the amount of the soil resource dedicated to trail treads within the Upper Metolius watershed by a total of 15.7 miles.

ACS Objective 2: Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include flood plains, wetlands, upsweep areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

The project complies with this objective by removing bridge crossings and puncheon trail within riparian areas that will help improve and maintain stream network connections for aquatic and riparian-dependent species.

ACS Objective 3: Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.

The project complies with this objective by actively restoring the banks of stream channels where existing bridge and puncheon crossings are removed and maintaining the natural channel shape at the Bear Valley Creek crossing.

ACS Objective 4: Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

The project complies with this objective by obliterating and restoring trail treads capable of delivering sediment to stream channels.

ACS Objective 5: Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

The project complies with this objective by reducing the direct input of sediment to stream channels from disturbed ground dedicated to trails. The restoration treatments would slightly delay the timing and reduce the volume and rate of sediment transport to stream channels.

ACS Objective 6: Maintain and restore in-stream flows sufficient to create and restore riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration and spatial distribution of peak, high, and low flows must be protected.

The project complies with this objective by having no measurable effect on in-stream flows.

ACS Objective 7: Maintain and restore timing, variability, and duration of flood plain inundation and water table elevation in meadows and wetlands.

The project complies with this objective by removing puncheon crossings in wet areas that may negatively affect the timing, variability, and duration of water table elevations in wetlands sourced from spring seeps. Floodplain inundation would not be measurably affected by this project.

ACS Objective 8: Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distribution of coarse woody debris sufficient to sustain physical complexity and stability.

The project complies with this objective by restoring the distribution of spring seep drainage along the Minto Lake Tail and adding coarse woody debris at the Candle Creek crossing of the Sugar Pine Ridge trail.

ACS Objective 9: Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.

The project complies with this objective by restoring the distribution of spring seep drainage by closing and obliterating a section of constructed turnpike along the Minto Lake trail and restoring it to natural elevations and channels.

Conclusion

The project complies with all nine objectives outlined in the Aquatic Conservation Strategy.

Wildlife

This environmental assessment incorporates by reference (as per 40 CFR 152.21) the Wildlife specialist report and other technical documentation used to support the analysis and conclusions of this environmental assessment. The entire report is in the project record which is located at the Sisters Ranger District office in Sisters, Oregon.

Introduction

This section documents the effects/impacts of the proposed Mt. Jefferson and Mt. Washington Trails Project to meet the requirements of Forest Service Manual (FSM) 2630.3., FSM 2670-2671, FSM W.O. Amendments 2600-2005-1, the Endangered Species Act of 1973 (ESA), and the Land and Resource Management Plan (*LRMP*, USDA Forest Service 1990) for the Deschutes National Forest (Forest) as amended by the Northwest Forest Plan (*NWFP*, USDA Forest Service and USDI Bureau of Land Management1994). A professional-level wildlife biologist has completed the BE for effects to listed and proposed species under the ESA and impacts to Region 6 sensitive species (USDA Forest Service 2010) and it has been approved by a journey-level biologist. The wildlife report considers impacts to Survey and Manage Species under the NWFP, Forest LRMP Management Indicator Species and habitats, and migratory landbirds. This report will be filed with the originating *Request for Pre-Field Review* and the supporting NEPA documentation.

Federally Listed and Proposed Species

The federally endangered gray wolf, threatened northern spotted owl, and proposed North American wolverine have habitat in the project area (Table 7). There is no habitat or proposed critical habitat for the

proposed Oregon spotted frog in the project area (Table 7).

A Programmatic Biological Assessment (BA) for ESA Section 7 informal consultation was completed for projects proposed on the Forest during August 2010 to August 2013 (USDA Forest Service 2010) that may affect but would not likely adversely affect the northern spotted owl. The BA established project design criteria (PDCs) to streamline consultation with the U.S. Fish and Wildlife Service. Project design criteria focus on habitat alteration and disturbance effects (Appendix C). A request for extension of this BA was sent to the FWS on August 12, 2013 (USDA Forest Service 2013b).

Table 7. Federally Listed and Proposed Species on the Deschutes National Forest.

Federally Listed and Proposed Species under the Endangered Species Act on the Deschutes National Forest				
Species	**Status**	**Habitat**	**Habitat and Presence in Project Area**	**Effect**
Gray wolf (*Canis lupus*)	Federal Endangered	Any Forest PAG	No denning or rendezvous habitat. Potential dispersal habitat.	No Effect to individuals or habitat
Northern spotted owl (*Strix occidentalis caurina*)	Federal Threatened, MIS[1]	Old growth mixed conifer forests	Two home ranges, nesting, roosting, and foraging habitat (NRF), dispersal habitat, designated critical habitat	No Effect to individuals, Nesting, Roosting, or Foraging (NRF) habitat, dispersal habitat, or connectivity. No effect to primary constituent elements of designated critical habitat
North American wolverine (*Gulo gulo luscus*)	Federal Proposed, Sensitive, MIS	Mixed forests, High Elevation	Potential Dispersal Habitat	No Effect to individuals or habitat
Oregon spotted frog (*Rana pretiosa*)	Federal Proposed Threatened, Sensitive[2]	Shallow margins of lakes	No habitat	No effect to individuals or habitat
Oregon spotted frog (*Rana pretiosa*) proposed critical habitat	Proposed critical habitat	Shallow margins of lakes	None	No effect to proposed critical habitat
[1] MIS=LRMP Management Indicator Species				
[2] Sensitive=Region 6 Sensitive Species				

Gray wolf

Existing Condition

The gray wolf usually occurs in forested habitats with some open areas such as river valleys and meadows for hunting prey including pronghorn, deer and elk, and smaller mammals. Wolf packs (usually 5-10 animals) can have very large territories up to 400 square miles or larger. Key wolf habitat components identified in the 1987 Wolf Recovery Plan (USDI FWS 1987) are: 1) a sufficient, year-round prey base of ungulates and alternative prey, 2) suitable and somewhat secluded denning and rendezvous sites, and 3) sufficient space with minimal exposure to humans. Den sites are excavated areas in the soil but hollow logs, beaver lodges, the base of hollow trees, pit excavations, and rock caves, usually near water, are also used. Rendezvous sites are the activity sites used after the denning period and prior to the nomadic

hunting period of fall and winter. They are often in open grassy areas near water or at forest edges.

In Oregon, the gray wolf is listed as federally endangered in areas west of Highways 395, 78 and 95 which includes the Forest. In 2011, a single male gray wolf was documented dispersing through the southern portion of the Forest and subsequently traveled south into California. In 2012 and 2013, it was documented traveling back and forth across the California/Oregon southern border.

There are no known wolf packs on the Forest. The project area does not contain habitat for denning or rendezvous sites. There is a very low probability that a gray wolf could disperse through the project area.

Alternative 1 – No Action Ecological Trends

Under the no action alternative, 15.7 miles of trail would not be decommissioned and 13.2 miles of Trail Class 3 trails would not be downgraded to a Trail Class 1. Recreational use would likely continue to remain low as meeting the required maintenance objective would remain a challenge due to limited funding and higher priorities. Vegetation may increase in places on the trails due to a lack of maintenance. Areas on the trail that contribute to erosion due to cut slopes or improper drainage would not be restored. Future recreational use is not anticipated to have any effect on individual wolves or their habitat in the project area or in the watershed due to the low use and unlikely occurrence of the wolf.

Alternative 2 – Proposed Action

Direct and Indirect Effects

Denning or rendezvous habitat would not be affected because it does not occur in the project area. A gray wolf occurring in the watershed could potentially disperse through the project area. Displacement from the project area because of disturbance during project implementation is highly unlikely due to the nocturnal movements of gray wolves, the lack of suitable denning or rendezvous habitat, and the short duration of project activities from hand tools. Noise disturbance from decommissioning activities would occur over a short distance (500 feet) of three trailheads and will be within the scope of noise associated with routine maintenance along the trail. Activities proposed will not alter prey availability or movement.

The 13.2 miles of trail proposed to be downgraded from a Trail Class 3 to Trail Class 1 would result in reduced annual maintenance, which would increase the amount of vegetation that regrows between maintenance cycles and likely result in decreased recreational use and therefore reduced noise disturbance to wolves that could potentially disperse through the project area.

Cumulative Effects

Because there are no negative direct or indirect effects from the project, there are no cumulative effects to the gray wolf in the Upper Metolius River watershed.

Conclusion

Under Alternative 1, the ecological trend for wolves in the project area is a low level of recreational disturbance and degraded habitat conditions on the 28.9 miles of trail.

Under Alternative 2, the proposed action would not alter or remove any habitat elements for the gray wolf or result in disturbance to the gray wolf. There will be ***No Effect*** to the gray wolf associated with the project. Because there are no negative direct or indirect effects from the project, there are no cumulative effects to the gray wolf in the Upper Metolius River watershed.

Northern Spotted Owl

Existing Condition

The project occurs within the range of the northern spotted owl. The spotted owl inhabits mature to old-growth mixed coniferous habitats. They will occupy second-growth forests if key components of mature forests are present; however, population density and reproductive success are usually lower than in old-

growth forests. Prey species on the drier East Cascades forests include a mix of arboreal and terrestrial rodents including northern flying squirrels, woodrats, voles, and deer mice, with birds and insects as secondary prey. Mixed conifer stands provide the best habitat for northern flying squirrel while lodgepole pine stands provide habitat for woodrats and deer mice.

Nesting, Roosting, and Foraging Habitat

Functional nesting, roosting, and foraging (NRF) habitat for the spotted owl occurs in multi-storied canopies in mixed conifer stands and riparian areas. The canopy cover is typically ≥ 40% with an overstory of at least five percent of trees ≥ 21 inches diameter-at-breast- height (dbh). Habitat that meets NRF requirements also provides foraging habitat, although a wider array of forest types are used for foraging, including more open and fragmented habitat. Mapped NRF habitat occurs at the Dry Creek and Sugar Pine Ridge trailheads where decommissioning activities are proposed.

Home Range

Six spotted owl home ranges overlap the project trails. Four of these—Dry Creek, Brush Creek, Cache West, and Bear Valley—are no longer considered viable due to a lack of NRF habitat. Portions of the Jefferson Lake Trail and Candle Creek, both of which are considered inactive but potentially viable, also overlap the project trails. Approximately 179.5 acres of NRF occur in the Jefferson Lake Trail home range and 156.7 acres of NRF occur in the Candle Creek home range. Detections of owls in the Jefferson Lake Trail home range occurred in 1972-1975, 1979-1981, 1983, 1987-1988, and 1996. Confirmed nesting occurred in 1972, 1974, 1975, and 1980. During the 2003 B&B fire, the project area burned at a high or mixed severity level in the Jefferson Lake Trail home range. The only year that nesting in the Candle Creek home range was confirmed was in 1986. One response occurred in 1987 and a pair was seen in 1991. Visits conducted for most years from 1988 to 2010 resulted in no detections. The B&B fire burned the Candle Creek nest stand in 2003.

Dispersal Habitat

Dispersal habitat enables spotted owl young to move from one territory to another, away from natal areas or adults. Dispersal habitat is defined in the Programmatic BA as a minimum of 30% canopy closure regardless of plant association, a minimum average diameter of 7 inches dbh for lodgepole pine stands, and 11 inches dbh for mountain hemlock, ponderosa pine and mixed conifer. Dispersal habitat occurs in the project area in areas that did not undergo high or mixed-severity burns during the 2003 B&B fire.

Critical Habitat

The final rule for critical habitat designation was released on December 4, 2012 and became effective on January 3, 2013 (USDI Fish and Wildlife Service 2013). The FWS encourages land managers to consider implementation of forest management practices recommended in the 2011 Revised Recovery Plan to restore natural ecological processes where they have been disrupted or suppressed and the application of "ecological forestry" management practices within critical habitat to reduce the potential for adverse impacts associated with commercial timber harvest when such harvest is planned within or adjacent to critical habitat. The FWS encourages land managers to consider the conservation of existing high quality northern spotted owl habitat, the restoration of forest ecosystem health, and the ecological forestry management practices recommended in the Revised Recovery Plan that are compatible with both the goals of spotted owl recovery and Standards and Guidelines of the Northwest Forest Plan. In fire-prone forests east of the Cascade crest, it is recognized vegetation and fuels management may be appropriate both within and outside designated critical habitat where the goal of such treatment is to conserve natural ecological processes or restore them (including fire) where they have been modified or suppressed.

Critical habitat is defined in section 3 of the Act as (50 CFR Part 17 p. 71896):

- The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

- Essential to the conservation of the species and
- That may require special management considerations or protection and
- Specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species

Physical and Biological Features

Physical and biological features (PBFs) are essential to the conservation of the species and may require special management considerations or protection. Physical or biological elements of habitat include but are not limited to (50 CFR Part 17 p. 71897):

- Space for individual and population growth and for normal behavior;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Cover or shelter;
- Sites for breeding, reproduction, and rearing (or development) of offspring; and
- Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

For the northern spotted owl, physical or biological features essential to the conservation of the species are forested areas that are used or likely to be used for nesting, roosting, foraging, and dispersing. The specific characteristics or components that comprise these features include, for example, specific ranges of forest stand density and tree size distribution, coarse wood debris, and specific resources, such as food, nest sites, cover, and other physiological requirements of spotted owls and considered essential to the conservation of the species.

Primary Constituent Elements

For the northern spotted owl, primary constituent elements (PCEs) are specific characteristics that make areas suitable for NRF or dispersal habitat. To be essential to the conservation of the northern spotted owl, features need to be distributed in a spatial configuration that is conducive to persistence of populations, survival, and reproductive success of resident pairs and survival of dispersing individuals until they can recruit into a breeding population. There are 4 PCEs: (1) forest type in early, mid, or late seral stages that supports the owl across its geographical range; (2) habitat that provides for nesting and roosting; (3) foraging habitat; and (4) habitat to support the transience and colonization phases of dispersal. The PCE #1 (forest type) must be in concert with at least one other PCE to be critical habitat.

Critical Habitat on the Deschutes National Forest including the Project Area

Critical habitat delineation on the Forest does not occur in a contiguous fashion but is instead mapped as two separate critical habitat units (CHUs) across the three ranger districts. These CHUs are further divided into subunits. The Mt. Jefferson and Mt. Washington Trails project occurs in CHU #7, of which 250,056 acres occur on the Forest, and within the subunit East Cascades North #8 (ECN 8) of which 94,622 acres occur on Forest lands. Approximately 1 mile of the Minto Creek Trail is within designated critical habitat.

Alternative 1 – No Action Ecological Trends

Under the no action alternative, 15.7 miles of trail would not be decommissioned and 13.2 miles of Trail Class 3 trails would not be downgraded from a Trail Class 3 to a Trail Class 1. Recreational use would likely continue to remain low over time because meeting the required maintenance objective would remain a challenge due to limited funding and higher priorities. Vegetation may increase over time in areas on the trails due to this lack of maintenance. Areas on the trail that contribute to erosion due to cut slopes or improper drainage would not be restored. The ecological trend for the spotted owl in the project

area is minimal disturbance due to low recreation use and degraded habitat conditions along the trails.

Alternative 2 – Proposed Action

Direct and Indirect Effects

No known nests or activity centers are within 0.25 miles of the trails proposed for decommissioning or for downgrading. NRF habitat exists at the trailheads for Dry Creek and Sugar Pine Ridge where decommissioning activities would occur; however, no habitat components for the spotted owl including NRF or dispersal/connectivity would be altered or removed in the project area. Therefore, no surveys in NRF habitat are required because there are no habitat-disturbing activities. No snags or trees are proposed for falling and/or removal unless required to meet OSHA safety compliance regulations.

Trail decommissioning activities would be confined to the existing trail prism and be completed in a short amount of time using hand tools only. Noise disturbance from project activities would equal that of routine trail maintenance. No noise disturbance would occur within 0.25 miles of a known spotted owl nest of activity center.

The trail decommissioning and downgrading on 28.9 miles of trail would decrease trail recreational use in NRF habitat. It is possible that this reduction in trail use would positively affect northern spotted owls by reducing human disturbance; however, these positive effects are not anticipated to be measurable due to the low current use of the trails, the lack of suitable NRF habitat within 0.25 miles of the trails, and lack of known nest sites within 0.25 miles of the trails. Project design criteria is in place in the event that a spotted owl nest site is detected within 0.25 miles of the proposed decommissioning activities.

No primary constituent element of designated critical habitat will be removed, downgraded, or degraded. There will be ***No Effect*** to designated critical habitat.

Cumulative Effects

Because there are no negative direct or indirect effects to the spotted owl from the proposed action, there are no cumulative effects to the spotted owl in the Upper Metolius River watershed.

Conclusion

Under Alternative 1, the ecological trend for the spotted owl in the project area is minimal disturbance due to low recreation use and infrequent clearing of vegetation on the trails.

Under Alternative 2, the proposed action will have ***No Effect*** to the northern spotted owl or its habitat including nesting, roosting, and foraging habitat, dispersal habitat, or connectivity. The Mt. Jefferson and Mt. Washington Wilderness Trails project will have ***No Effect*** to primary constituent elements in designated critical habitat for the spotted owl. The proposed action is consistent with the Forest LRMP standards and guidelines and the 2010-2013 programmatic BA (Appendix C).

Because there are no negative direct or indirect effects from the project, there are no cumulative effects to the spotted owl in the Upper Metolius River watershed.

North American Wolverine

Existing Condition

The wolverine is a federal Candidate species, a Regional Forester Sensitive Species, and a Deschutes LRMP Management Indicator Species. On February 4, 2013, the FWS proposed it for listing as a threatened species under the ESA due to shrinking mountain spring snowpack as a result of climate change (Federal Register Vol. 78, No. 23).

The wolverine was thought to have been extirpated in Oregon by 1936 (Hiller 2011). At least one report of a wolverine was documented for each decade from the 1960s to the 1990s in Linn, Harney, Wheeler, and Grant counties (Hiller 2011). In 2011, a monitoring project detected three wolverines in the Wallow-

Whitman National Forest in northeastern Oregon, an area with no prior documentation of wolverines (Magoun et al. 2013). During 2008, a wolverine (probably of Rocky Mountain origin) was confirmed in northern California, the first evidence in almost 90 years (Moriarty et al. 2009).

Wolverines appear to be extremely wide-ranging and unaffected by geographic barriers such as mountain ranges, rivers, reservoirs, highways, or valleys. They are primarily scavengers but also depend on a variety of prey items. In winter, they tend to den in the ground under snow or in rocky ledges or talus slopes (Ingram 1973) although Copeland (1996) found a preference for montane coniferous forest habitats during winter. Wolverines make little use of young, thick timber and clearcuts (Hornocker and Hash 1981). Wolverines were documented using burned areas in Idaho (Copeland 1996) from immediately after the fire to up to several years after the event, possibly to follow ungulate herds.

Hornocker and Hash (1981) concluded that wolverine populations should be treated as regional rather than local whereas Edelman and Copeland (1999) suggested that wolverine populations move along corridors of mountainous habitats and that features such as the Columbia River Gorge and shrub-steppe habitats serve as barriers to dispersal. They also concluded that sightings occurring across the arid mountains of Central Oregon may suggest a movement corridor from the Cascade Mountains to the Wallowa Mountains. They may travel through and or forage infrequently at lower elevations on the district but use higher elevations for most of their needs.

Several historic sightings have been documented on the Sisters Ranger District near Suttle Lake and within the Mt. Jefferson and Mt. Washington wilderness areas. Two aerial flights were conducted in the Three Sisters, Mt. Washington, and Mt. Jefferson wilderness areas and adjacent roadless areas in 1998 and 1999 with no detections. Baited camera systems placed near the wilderness boundary from 1997 through 1999 also did not detect wolverine presence. During the winter of 2012/2013, motion-detection cameras at bait stations for carnivores occurred on the Deschutes and Willamette National Forests and resulted in no detections.

Wolverine denning habitat was modeled across the Forest in 2012 (USDA Forest Sevice 2012) in the higher elevation mountain hemlock PAG where average tree size is ≥ 15 inches dbh. Approximately 1,656 acres of denning habitat were modeled across the Forest and 200 acres were modeled in the Upper Metolius River watershed. Wolverine denning habitat does not occur in the project area. There is a low potential that wolverine may disperse through the project area.

Alternative 1 – No Action Ecological Trends

Under the no action alternative, 15.7 miles of trail would not be decommissioned and 13.2 miles of Trail Class 3 trails would not be downgraded to a Trail Class 1. Recreational use would likely continue to occur but remain low as meeting the required maintenance objective would remain a challenge due to limited funding and higher priorities. Vegetation may increase in places on the trails due to a lack of maintenance. Areas on the trail that contribute to erosion due to cut slopes or improper drainage would not be restored. The low recreational disturbance coupled with the infrequent maintenance activities over time are anticipated to result in minimal negative disturbance to wolverine that may disperse through the project area.

Alternative 2 – Proposed Action

Direct and Indirect Effects

There are no direct or indirect impacts to the wolverine or its habitat from the Mt. Jefferson and Mt. Washington Wilderness Trails project. The project area does not include habitat components with the structure needed for wolverine denning.

A wolverine occurring in the watershed could potentially disperse through the project area. Displacement from the area because of disturbance during project decommissioning activities is unlikely due to the nocturnal movements of wolverines, the lack of suitable denning habitat, and the short duration of project

activities. Noise disturbance from decommissioning activities would occur within sight distance of three trailheads and would be equal to that of routine maintenance using hand tools. Activities proposed would not alter prey availability or movement.

Although recreational use is currently low on the trails, it is possible that decommissioning and maintenance downgrading would have a slight positive effect to wolverine by reducing human disturbance and increasing habitat security.

Cumulative Effects

Because there are no negative direct or indirect effects to the wolverine from the project, there are no cumulative effects to the wolverine in the Upper Metolius River watershed.

Conclusion

Under the No Action alternative, the ecological trend for the wolverine is low degree of recreational disturbance and degraded habitat conditions on the trails.

Under Alternative 2, the proposed action will have ***No Effect*** to wolverine individuals or habitat. Indirectly, the proposed action may slightly reduce disturbance from recreational activity and increase habitat effectiveness through restored habitat conditions over time. Because there are no negative direct or indirect effects to the wolverine from the project, there are no cumulative effects to the wolverine in the Upper Metolius River watershed. The Mt. Jefferson and Mt. Washington Wilderness Trails project is consistent with the Forest LRMP standards and guidelines for wolverine and will not lead to a negative trend towards viability for the wolverine on the Forest.

Oregon Spotted Frog

On August 29, 2013, two proposed rules were published in the Federal Register (2013*a*, 2013*b*) to list the Oregon spotted frog as a threatened species and to designate critical habitat. The Oregon spotted frog is documented to occur on the Forest. The Forest Service has interagency cooperation (Section 7 conference) responsibilities for species or critical habitat proposed for listing or designation, respectively. Forest Service administrative units and biologists should review all proposed and ongoing actions within the range of the species or their habitat to assess potential effects.

Consistent with Regional Office direction of 9/19/2013 (USDA Forest Service 2013), both proposed rules were reviewed to determine if the trails project will have any further impacts to this species or proposed critical habitat. This project does not have any suitable habitat in the project area; therefore, there will be no further effects to the Oregon spotted frog. In addition, there is no mapped critical habitat for the frog in the project area and therefore there are no effects to Oregon spotted frog proposed critical habitat.

Regional Forester Sensitive Species

Table 8 lists 24 Regional Forester Sensitive Species known to occur or potentially occur on the Forest (USDA Forest Service 2010). Based on a review of records and habitat requirements, the following sensitive species have potential habitat in the project area: Fringed myotis, Johnson's hairstreak and Crater Lake tightcoil. There would be no impacts to habitat for either of these species and therefore there are no impacts to these species from the proposed action.

Table 8. Regional Forester Wildlife Sensitive Species on the Deschutes National Forest.

Regional Forester Sensitive Species				
Species	**Status**	**Habitat**	**Habitat and Presence in Project Area**	**Impact from Project**
BIRDS				
American Peregrine Falcon (*Falco peregrinus anatum*)	Sensitive, MIS	Riparian, Cliffs	No habitat	No impact
Bald eagle (*Haliaeetus leucocephalus*)	Sensitive, MIS	Lakes, snags	No habitat	No impact
Lewis woodpecker (*Melanerpes lewis*)	Sensitive, MIS	Open ponderosa pine snags, burned areas	No habitat	No impact
White-headed woodpecker (*Picoides albolarvatus*)	Sensitive, MIS	Large-diameter ponderosa pine snags	No habitat	No impact
Bufflehead (*Bucephala albeola*)	Sensitive	Lakes, snags	No habitat	No Impact
Northern waterthrush (*Seiurus noveboracensis)*	Sensitive	Riparian streambanks with dense willows	No habitat	No Impact
Harlequin duck (*Histrionicus histrionicus*)	Sensitive	Rapid streams, Large trees	No habitat	No Impact
Horned grebe (*Podiceps auritus*)	Sensitive	Lake	No habitat	No Impact
Red-necked grebe (*Podiceps gisegena*)	Sensitive	Lake	No habitat	No Impact
Tricolored blackbird (*Agelaius tricolor*)	Sensitive	Lakeside, bulrush (cattails)	No habitat	No Impact
Greater sage grouse (*Centrocercus urophasianus)*	Federal Candidate, Sensitive	Sagebrush flats	No habitat	No Impact
Yellow Rail (*Coturnicops noveboracensis*)	Sensitive	Marsh	No habitat	No Impact
Tule greater white-fronted goose (*Anser albifrons*)	Sensitive	Nests on marshy ponds in the tundra; winters in open country	No habitat	No Impact
MAMMALS				
Pacific fisher (*Martes pennanti*)	Federal Candidate, Sensitive, MIS	Mixed forests, High Elevation	No habitat	No impact
Townsend's big-eared bat (*Corynorhinus townsendii*)	Sensitive, MIS	Mixed forests, desert, caves, buildings, bridges, mines	No habitat	No Impact
Pallid bat (*Antrozous pallidus*)	Sensitive	Caves, cliffs, rock outcrops	No habitat	No Impact
Spotted bat (*Euderma*	Sensitive	Cliffs, caves, rock	No habitat	No Impact

maculatum)		outcrops		
Fringed myotis (*Myotis thysanodes*)	Sensitive	Cliffs, caves rock outcrops, trees/snags	Potential habitat	No Impact
AMPHIBIANS				
Columbia spotted frog (*Rana luteiventris*)	Federal Proposed, Sensitive	Shallow lakes, ponds	No habitat	No Impact
INVERTEBRATES				
Johnson's hairstreak (*Callophrys johnsoni*)	Sensitive	Mixed forests with dwarf mistletoe	Potential habitat	No impact
Silver-bordered fritillary (*Boloria selene*)	Sensitive	Bogs and wet meadows	No habitat	No impact
Western bumblebee (*Bombus occidentalis*)	Sensitive	Forest edges, gardens	No impact	No impact
Crater Lake tightcoil (*Pristiloma articum crateris*)	Sensitive	Perennial riparian areas	Potential habitat	No impact
Evening field slug [1] (*Deroceras hesperium*)	Sensitive	Perennial wet meadows	No habitat	No impact
[1] Roth et al. (2013) compared *Deroceras hesperium* to *D. laeve* and concluded that it is a "variable, single species" and thus, *D. hesperium* should be considered a junior synonym of *D. laeve*, which is not considered a rare species. The Evening field slug is also a Survey and Manage species under the Northwest Forest Plan and is suspected to occur on the Forest but has not been documented.				

Survey and Manage Species

The Northwest Forest Plan required that certain rare species be surveyed prior to ground-disturbing activities so that these locations can be considered in Forest project planning. The Northwest Forest Plan required that certain rare species be surveyed prior to ground-disturbing activities so that these locations can be considered in Forest project planning with the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines.

The Crater Lake tightcoil is a Survey and Manage Category B species. Suitable habitat for the Crater Lake tightcoil includes perennially wet situations in mature conifer forests, among rushes, mosses and other surface vegetation or under rocks and woody debris within 30 feet of open water in wetlands, springs, seeps and riparian areas (Gowan and Burke 1999). Suitable habitat potentially occurs where Sugar Pine Ridge trail crosses Candle Creek in the riparian area. Although a bridge would be removed near the trailhead, no activities that would disturb habitat during decommissioning activities are anticipated. Therefore, pre-disturbance surveys are not required (Gowan and Burke 1999).

The great gray owl is a Survey and Manage Category C species and a Forest Management Indicator Species and all known sites require management and are considered high-priority. The great gray owl uses mature coniferous forests within 0.1 to 0.2 miles of an open, typically a wet, meadow (Marshall et al 2003). In Central Oregon, great gray owls also occupy old lodgepole pine or ponderosa/lodgepole pine mixed forests in close proximity to openings (Marshal et al. 2003). There is no habitat for the great gray owl in the project area. Therefore, no pre-disturbance surveys are required in the project area (Quintana-Coyer et al. 2004).

Management Indicator Species

Table 9 lists the LRMP Management Indicator Species and habitats known to occur on the Forest. Based

on a review of records and habitat requirements, the Northern goshawk, Cooper's hawk, sharp-shinned hawk, woodpeckers, American marten, elk, mule deer, and species associated with special or unique habitats may be impacted by the project.

Table 9. LRMP Wildlife Management Indicator Species and Habitats.

Species	Habitat	Habitat/Presence in Project Area	Impact
BIRDS			
Northern spotted owl	Mature forests with high canopy closure/tree density	Potential habitat	No impact
Cooper's Hawk (*Accipiter cooperi*)	Mature forests with high canopy closure/tree density	Potential habitat	No impact
Great Gray Owl (*Strix nebulosa*)	Mature and old growth forests associated with openings and meadows	No habitat	No impact
Golden Eagle (*Aquila chrysaetos*)	Open ponderosa pine or mixed conifer	Existing habitat	No Impact
Northern Goshawk (*Accipiter gentiles*)	Mature and old-growth forests; especially high canopy closure and large trees	Potential habitat	No impact
Great blue heron (*Ardea herodias*)	Lakeshores, marshes	No habitat	No Impact
Osprey (*Pandion haliaetus*)	Large snags associated with fish-bearing water bodies	No habitat	No Impact
Red-tailed Hawk (*Buteo jamaicensis*)	Large snags, open country interspersed with forests	No habitat	No impact
Sharp-shinned Hawk (*Accipiter striatus*)	Mature forests with high canopy closure and young, dense, even-aged stands	Potential habitat	No impact
Waterfowl[1]	Lakes, ponds, streams	No habitat	No impact
Woodpeckers[2]	Snags, burned areas, riparian hardwoods	Existing habitat. Presence likely.	No impact
MAMMALS			
American marten (*Martes americana*)	Mixed Conifer or High Elevation late successional forests with abundant down woody material	Existing habitat. Presence likely.	No impact
Elk (*Cervus elephus*)	Mixed forest habitats	Existing habitat. Presence known.	No impact
Mule Deer (*Odocoileus hemionus*)	Mixed forest and edge habitats	Existing habitat. Presence known.	No impact
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	Analyzed under Sensitive Species	No habitat	No impact
HABITATS			
Species Associated with Snags, Down Wood and Logs		Existing habitat	No impact

Species Associated with Special or Unique Habitats: Springs, seeps, cliffs, and talus slopes	None	No impact
[1]Waterfowl: Canada goose, wood duck, gadwall, American widgeon, mallard, blue-winged teal, cinnamon teal, green-winged teal, northern shoveler, northern pintail canavasback, redhead, ring-necked duck, lesser scaup, harlequin duck, common goldeneye, Barrow's goldeneye, bufflehead, hooded merganser, common merganser, ruddy duck, common loon, pied-billed grebe, horned grebe, red-necked grebe, eared grebe, and western grebe		
[2]Woodpeckers: Lewis's woodpecker, White-headed woodpecker, Black-backed woodpecker, Three-toed woodpecker, Pileated woodpecker, Williamson's sapsucker, Red-naped sapsucker, Red-breasted sapsucker, Downy woodpecker, Hairy woodpecker, and Northern flicker		

Raptors and Woodpeckers

No impacts to habitat for raptors (Northern spotted owl, Northern goshawk, Cooper's hawk, and sharp-shinned hawk) or woodpeckers would occur. No trees or snags would be altered or removed. Noise disturbance during decommissioning activities would be very minimal due to the use of hand tools and confinement of activities on existing trails and is anticipated to equal that of routine maintenance. See the Resource Protection Measure section for project design criteria.

American Marten

Existing Condition

The American marten is associated with mixed conifer and high elevation hemlock/lodgepole pine late-successional habitats. Home range sizes vary widely from 600 to 2,500 acres. Marten habitat is generally dense-canopied (greater than 40% canopy cover) and supports significant amounts of large down logs ($\geq$20 inches at rest sites and >30 inches at den sites, 8 to 20 per acre) and snags (2 to 3 per acre) $\geq$20 inches dbh. Especially significant are riparian areas, ridge tops, and areas where high concentrations of down logs and snags occur (Ruggerio et al. 1994). Complex physical structure near the ground (Buskirk and Powell 1994) provides protection from predators, access to the below ground space where most prey are captured in winter, and protective thermal microenvironments (Buskirk and Powell 1994).

A Forest wide habitat assessment was completed for the American marten in 2012 which details its status, biology, habitat, and population trend (USDA Forest Service 2012). Habitat assumptions for the forest were based on studies on the Fremont-Winema National Forest (Raphael and Jones 1997) and in western Washington, and research in the Blue Mountains of northeastern Oregon (Wisdom et al. 2000).

Denning habitat was modeled Forest wide using all PAGs except juniper and ponderosa pine without the presence of lodgepole pine (USDA Forest Service 2012). There are approximately 433,973 acres of potential marten denning habitat across the Forest and 1,894 acres of denning habitat in the Upper Metolius River watershed.

Alternative 1 – No Action Ecological Trend

Under the no action alternative, 15.7 miles of trail would not be decommissioned and 13.2 miles of Trail Class 3 trails would not be downgraded to a Trail Class 1. Recreational use would continue to occur but remain low as meeting the required maintenance objective would remain a challenge due to limited funding and higher priorities. Vegetation may increase in places on the trails due to a lack of maintenance. Areas on the trail that contribute to erosion due to cut slopes or improper drainage would not be restored. The low recreational disturbance coupled with the infrequent maintenance activities over time are anticipated to result in minimal negative impacts to marten in the project area.

Alternative 2 – Proposed Action

Direct and Indirect Effects

Decommissioning of trails would include the use of hand tools to put in waterbars for improved drainage if needed, removal of any structures and signage, and arrangement brush and woody debris to disguise any indication of the trail. These activities would begin at the trailhead for line of sight distance up to a ¼ mile from the trailhead. Project activities would be confined to the existing trail prism. Noise disturbance during project operations is anticipated to equal that of routine trail maintenance. No impacts to snags or trees are anticipated. Minor movement of adjacent logs or shrubs to cover the trail may occur in places.

The decommissioning of 15.7 miles would potentially decrease trail recreational use, although use is low due to the existing lack of maintenance and early seral vegetation. Without further maintenance on these trails, existing cover for marten would increase over time and disturbance from human recreational use would decrease, both benefitting habitat security for marten.

The downgrade from a Trail Class 3 to a Trail Class 1 on 13.2 miles of trail would reduce the maintenance cycle which would result in some increased cover on a sporadic basis and likely result in reduced disturbance from human recreational use, both of which would benefit habitat security for marten.

Cumulative Impacts

Because there are no negative direct or indirect effects to marten from the project, there are no cumulative effects to the marten in the Upper Metolius River watershed.

Conclusion

Under Alternative 1 (No action), the ecological trend for the marten is minimal recreational disturbance and degraded vegetative conditions along 28.9 miles of trail.

Under Alternative 2, the proposed action will have ***No Impact*** to marten habitat. Indirectly, the proposed action may slightly reduce disturbance from recreational activity and increase habitat effectiveness. Because there are no negative direct or indirect effects to the marten from the project, there are no cumulative effects to marten in the Upper Metolius River watershed. The Mt. Jefferson and Mt. Washington Wilderness Trails project is consistent with the Forest LRMP standards and guidelines for marten and will not lead to a negative trend towards viability for the marten on the Forest.

Elk and Mule Deer

Existing Condition

Elk inhabit semi-open forest, mountain meadows, foothills, plains, and valleys. They graze on grasses and forbs and browse woody shrubs and twigs. Elk management objectives on the Forest were developed cooperatively with the Oregon Department of Fish and Wildlife (ODFW). Four ODFW wildlife management units (WMUs) occur on the Forest: Upper Deschutes, Paulina, Fort Rock, and Metolius. Most of the areas in the WMUs occur on Bureau of Land Management (BLM), State of Oregon, and private ownerships lands in addition to Forest Service lands. Due to weather patterns, use by individual elk varies from year to year across these various land ownerships.

The LRMP established eleven Key Elk Areas (KEHAs) to provide conditions needed to support at least 1,500 summering elk and 240 wintering elk objectives in these WMUs. Objectives for winter and summer populations are based on the entire WMU and not just portions on the Forest. The LRMP standards and guidelines WL-42, WL-43, and WL-45 through WL-51 apply to the established KEHAs only. The Mt. Jefferson and Mt. Washington Trails project does not occur in any KEHA. The LRMP S&G WL-44 provides for management of elk calving needs in riparian areas to the extent they do not conflict with riparian-dependent resource management (within or outside of key elk areas). There are no known elk calving locations in the project area. Because none of the LRMP standards and guidelines are applicable to the project area, no further discussion of impacts to elk are addressed in this document.

The mule deer forages on grasses and forbs (non-woody, broad-leaved plants) and browse (leaves and

twigs of woody shrubs) primarily in shrub habitats. Unlike elk, they select the most nutritious vegetative parts which means they have more specific foraging needs and a higher-quality diet. Shrubs occur mostly in early successional habitats—those recently disturbed and those maturing to climax state. Disturbance events in forested areas including wildfire, prescribed fire, wind storms, insect infestation, tree disease, and timber harvest are key elements in maintaining these shrub components. Inadequate foraging habitats in or adjacent to summer range can be a limiting factor for winter conditioning and survival. Mule deer are migratory and move from high-elevation summer ranges to low-elevation winter ranges where foraging is easier under reduced snow depths.

All of the proposed trail work would occur in mule deer summer range. Summer range occurs in all allocations of the LRMP outside the Deer Habitat MA-7 allocation (outside winter range). The LRMP standards and guidelines WL-5 through WL-59 apply to deer summer range and focus on open road densities, hiding cover, and travel corridors. Deer management objectives developed jointly with ODFW include four WMUs to provide conditions for 24,500 deer. Similar to elk, herd objectives for winter and summer populations are based on the entire WMU which includes BLM, State of Oregon, and private ownership lands, in addition to areas on the Forest. Hiding cover is close to or below the LRMP recommended threshold of 30% hiding cover in summer range in the Upper Metolius River Watershed. Hiding cover or screening cover does not occur in most of the trails project area due to previous stand-replacement and mixed mortality burns.

Alternative 1 –No Action Ecological Trends

Under the no action alternative, 15.7 miles of trail would not be decommissioned and 13.2 miles of Trail Class 3 trails would not be downgraded to a Trail Class 1. Recreational use would continue to occur on the trails proposed for decommissioning but remain low as meeting the required maintenance objective would remain a challenge due to limited funding and higher priorities. Vegetation may increase in places on these trails due to a lack of maintenance. Areas on the trail that contribute to erosion due to cut slopes or improper drainage would not be restored. The ecological trend for deer is minimal recreational disturbance and lack of hiding cover on 28.9 miles of trail.

Alternative 2 – Proposed Action

Direct and Indirect Effects

Hiding cover would likely increase in quantity and quality from natural post fire vegetative restoration along most of the project trails. No impacts to trees or hiding cover would occur. Minor movement of adjacent logs or shrubs to cover the trail may occur in places. The proposed action would positively impact hiding cover by restoring degraded hydrological conditions and recontouring slopes along the 15.7 miles of trail proposed for decommissioning. Trail decommissioning would include the use of hand tools to put in waterbars for improved drainage if needed, removal of any structures and signage, and arrangement brush and woody debris to disguise any indication of the trail. These activities would begin at the trailhead for line of sight distance up to a ¼ mile from the trailhead. Project activities would be confined to the existing trail prism. Noise disturbance during project operations would occur during summer when deer are most likely to occur in the project area; however, the levels of noise disturbance during decommissioning are anticipated to be minimal and equal that of routine trail maintenance activities.

Both the trail decommissioning and trail downgrading would reduce noise disturbance from humans and improve habitat conditions, resulting in enhanced habitat security for deer.

Cumulative Impacts

Because there are no negative direct or indirect impacts to the mule deer from the project, there are no cumulative effects to mule deer in the Upper Metolius River watershed.

Conclusion

Under the No Action alternative, the ecological trend for mule deer is minimal recreational disturbance and degraded hiding cover conditions on 28.9 miles of trail.

Under Alternative 2, the proposed action will have ***No Effect*** to mule deer habitat and will not lead to a trend towards federal listing. Indirectly, the proposed action may slightly reduce disturbance from recreational activity and increased habitat effectiveness due to trail decommissioning and trail downgrading. Because there are no negative direct or indirect impacts to mule deer from the project, there are no cumulative impacts to mule deer in the Upper Metolius River watershed. The Mt. Jefferson and Mt. Washington Wilderness Trails project is consistent with the Forest LRMP standards and guidelines for mule deer and will not lead to a negative trend towards viability for mule deer on the Forest.

Migratory Landbirds

The Forest Service prepared a Landbird Strategic Plan (USDA Forest Service 2000) to maintain, restore, and protect habitats necessary to sustain healthy migratory and resident bird populations. The purpose of the strategic plan is to provide guidance for the Landbird Conservation Program and focus efforts in a common direction. On a more local level, multiple agencies and organizations with the Oregon-Washington Chapter of Partners in Flight developed two publications for conserving landbirds in this region: *A Conservation Strategy for Landbirds of the East-Slope of the Cascade Mountains in Oregon and Washington* (Altman 2000) and *A Conservation Strategy for Landbirds in the Columbia Plateau of Eastern Oregon and Washington* (Altman and Holmes 2000). These documents outline conservation measures, goals and objectives, and management recommendations for specific habitat types on the east-slope of the Cascades and associated focal species. The Forest occurs in the Central Oregon subprovince for the East-Slope Cascades Landbird Strategy.

In addition, Executive Order 13186 directs federal agencies to avoid or minimize the negative impacts of their actions on migratory birds and take active steps to protect birds and their habitats. Federal agencies were required within two years to develop a Memorandum of Understanding with the U.S. Fish and Wildlife Service to conserve migratory birds including taking steps to restore and enhance planning processes whenever possible. To meet this goal, the U.S. Fish and Wildlife Service developed the Birds of Conservation Concern (USDI Fish and Wildlife Service 2008).

Birds of Conservation Concern are species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973. They encompass three distinct geographical scales – North American Bird Conservation Initiative (NABCI) Bird Conservation Regions (BCRs), U.S. Fish and Wildlife Service, and National—which represents species that have the highest conservation priorities in the United States, including territories in the Pacific and Caribbean.

While all of the bird species included in BCC are priorities for conservation action, the list makes no finding with regard to whether they warrant consideration for ESA listing. The goal is to conserve avian diversity in North America and includes preventing or removing the need for additional ESA bird listings by implementing proactive management and conservations actions (USDI Fish and Wildlife Service 2008). The 2008 lists were derived from three major bird conservation plans: the Partners in Flight North American Landbird Conservation Plan, the United States Shorebird Conservation Plan, and the North American Waterbird Conservation Plan. Conservation concerns stem from population declines, naturally or human-caused small ranges or population sizes, threats to habitat, or other factors.

Bird Conservation Regions (BCRs) were developed based on similar geographic parameters and are the basic units in which all bird conservation efforts should be planned and evaluated (USDI Fish and Wildlife Service 2008). The Great Basin Region BCR 9 encompasses the project area.

Table 10 lists the priority habitat features and associated landbird species known to occur on the Forest.

Based on a review of records and habitat requirements, six species have potential habitat in the project area: brown creeper, flammulated owl, hermit thrush, Olive-sided flycatcher, Willamson's sapsucker, and Calliope hummingbird. No impacts to habitat for any of these species would occur. No trees, snags, or brush would be altered or removed. Indirectly, the proposed action would result in decreased noise disturbance and increased habitat security due to restoration of 15.7 miles of trails and downgrading of 13.2 miles of trails. The proposed action is consistent with the Biological Objectives in the Conservation Strategy for focal landbird species.

Table 10. Associated Habitats for Focal Landbirds and Birds of Conservation Concern.

Focal Landbird Species for Central Oregon			
Habitat Feature	**Species**	**Habitat in Project Area**	**Impact**
Ponderosa Pine			
Large patches of old forest with large snags	White-headed woodpecker	No	No
Large trees	Pygmy nuthatch	No	No
Open understory with regenerating pines	Chipping sparrow	No	No
Patches of burned old forest	Lewis' woodpecker	No	No
Mixed Conifer (Late-Successional)			
Large trees	Brown creeper	Yes	No
Large snags	Williamson's sapsucker	No	No
Interspersion grassy openings and dense thickets	Flammulated owl	Yes	No
Multi-layered/dense canopy	Hermit thrush	Yes	No
Edges and openings created by wildfire	Olive-sided flycatcher	Yes	No
Lodgepole Pine: Old Growth	Black-backed woodpecker	No	No
Whitebark Pine: Old Growth	Clark's nutcracker	No	No
Meadows: Wet and dry	Sandhill Crane	No	No
Aspen: Large trees with regeneration	Red-naped sapsucker	No	No
Subalpine fir: Patchy presence	Blue Grouse	No	No
Birds of Conservation Concern			
Preferred Habitat	**Bird Species**	**Habitat in Project Area**	**Impact**
Sagebrush dominated Rangelands	Greater Sage Grouse (Columbia Basin DPS)	No	No
Open water intermixed with emergent vegetation	Eared Grebe (non-breeding)	No	No
Lakeside with large trees	Bald Eagle	No	No
Elevated Nest Sites in Open Country	Ferruginous Hawk	No	No
Elevated Nest Sites in Open Country	Golden Eagle	No	No
Cliffs	Peregrine Falcon	No	No
Dense Marsh Habitat	Yellow Rail	No	No
Dry Sandy Beaches	Snowy Plover	No	No

Meadow/Marsh	Long-billed Curlew	No	No
Marsh/Wet Meadows	Marbled Godwit	No	No
Dense riparian/cottonwoods	Yellow-billed Cuckoo	No	No
Ponderosa pine forests	Flammulated Owl	Yes	No
Cliffs associated with waterfalls	Black Swift	No	No
Open mountain meadows, meadow edges, riparian areas	Calliope Hummingbird	Yes	No
Ponderosa pine forests	Lewis's Woodpecker	No	No
Ponderosa pine forests	Williamson's Sapsucker	No	No
Ponderosa pine forests	White-headed Woodpecker	No	No
Open country with scattered trees or shrubs	Loggerhead Shrike	No	No
Juniper, juniper-ponderosa pine, ponderosa pine edges	Pinyon Jay	No	No
Sagebrush	Sage Thrasher	No	No
Scrubby vegetation in arid montane woodlands	Virginia's Warbler	No	No
Open ponderosa pine with dense brush	Green-tailed Towhee	No	No
Sagebrush clearings in coniferous forests/bitterbrush	Brewer's Sparrow	No	No
Ceanothus and oak covered hillsides	Black-chinned Sparrow	No	No
Unfragmented patches of sagebrush	Sage Sparrow	No	No
Cattails or Tules	Tricolored Blackbird	No	No
Rock outcroppings and snowfields	Black Rosy Finch	No	No

Botany

This environmental assessment incorporates by reference (as per 40 CFR 152.21) the Botany specialist report and other technical documentation used to support the analysis and conclusions of this environmental assessment. The entire report is in the project record which is located at the Sisters Ranger District office in Sisters, Oregon.

Regulatory Framework / Management Direction

Sensitive Plant Species - This report is prepared in compliance with the Forest Service Manual (FSM) 2672.4 and the Endangered Species Act of 1973 (Subpart B; 402.12, section 7 consultation). Effects of this activity are evaluated for those TES plant species on the current Regional Forester's Sensitive Species List (U.S. Forest Service 2011) (Appendix D). There are no Endangered or Threatened Plant species on the Deschutes National Forest.

Survey and Manage Plant Species - This project applies the Survey and Manage species list in the 2001 ROD (Table 1-1, Standards and Guidelines, pages 41-51) and thus meets the provisions of the 2001 *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines (*Appendix E).

Invasive Plant Species - Forest Service Manual (FSM) direction requires that Noxious Weed Risk Assessments be prepared for all projects involving ground-disturbing activities. For projects that have a moderate to high risk of introducing or spreading noxious weeds, Forest Service policy requires that decision documents must identify noxious weed control measures that will be undertaken during project implementation (FSM 2081.03, 29 November 1995). Invasive plants are identified from the Deschutes

National Forest Invasive Plant List (Appendix F).

In 2006, the Deschutes and Ochoco National Forest developed Invasive Plant Prevention Practices using the Guide to Noxious Weed Prevention Practices (USFS 2006). These practices were preceded by Forest Plan direction that was established with the Pacific Northwest Region Preventing and Managing Invasive Plants Record of Decision (U.S. Forest Service 2005). When the R-6 Invasive Plant Species FEIS ROD came out in October 2005, it amended R-6 Forest Plans, adding 23 Standards related to prevention and treatment of invasive plants. Additional direction for the management of invasive plants is contained in Forest Service Manual, Section 2080. Prevention practices were also included in the Deschutes and Ochoco National Forest and Crooked River National Grassland Invasive Plant Treatments Environmental Impact Statement (USFS 2012).

The invasive plant prevention practices are provided for use on the Deschutes and Ochoco National Forests and Crooked River National Grassland to minimize the introduction of invasive plants; minimize conditions that favor the establishment or spread of invasive plants; and to facilitate the integration of invasive plant management practices into resource programs.

Effects of the activities of the project on the introduction, spread and enhancement of invasive plant populations and required mitigation measures are addressed in this document.

Desired Future Condition

As defined by the 1964 Wilderness Act, wilderness was recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness was further defined to mean an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which:

(1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;

(2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation;

(3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and

(4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

In the Deschutes National Forest Land and Resource Management Plan (1990), the goal in Wilderness Designation also includes a non-degradation policy to maintain each wilderness in at least as wild a condition as it was at the time of its classification, recognizing certain areas would need rehabilitation to reestablish wilderness values.

Wilderness plant communities should remain diverse and resilient, and damaged areas should be restored. As genetic biodiversity reserves, extreme caution is used in introducing plant material, even for restoration. Local plant material from on site should be used. A range of natural disturbances, including fire, should continue to play their role in forest renewal. Invasive or non-native plants should be rare or absent.

Analysis Methods

Sensitive Plant Species. Information known about the area was consulted. No potential habitat was identified. Since no habitat would be disturbed no surveys were required.

Survey and Manage Plant Species. Information known about the area was consulted. The evaluation of habitat for Survey and Manage Plant Species is derived from multiple sources including: Castellano et al. 1999, Castellano et al. 2003, Cushman and Huff 2007, and websites for the Forest Mycology and

Mycorrhiza Research Team Website at http://mgd.nacse.org/fsl/survey and Interagency Special Status/Sensitive Species Program (ISSSSP) at http://www.fs.fed.us/r6/sfpnw/issssp, and http://www.blm.gov/or/plans/surveyandmanage/index.php.

No species which require management of known sites (Category D & E) are found in the project area. No suitable habitat is found in the project area because trails and trail structures are not likely habitat.

Surveys were not required for Category A & C species because no suitable habitat is found in the project area. The project is not a habitat disturbing activity that is likely to have a significant negative impact on species habitat, its life cycle, microclimate, or life support requirements.

No suitable habitat for Category B species is found in the project area. Surveys were not required for Category B species (called Equivalent effort surveys) because the project is not a habitat disturbing activity in old growth habitat and is not likely to have a significant negative impact on species habitat, its life cycle, microclimate, or life support requirements.

The Survey and Manage species are detailed in the Survey & Manage Botany Checklist and Tracking Form in Appendix D.

Invasive Plant Species. Wilderness trails in and adjacent to the project area were surveyed for invasive species in 3 different efforts (Rueter, 2011, Rueter and Byland, 2008, Veverka 2011). Forest Service Wilderness Field Rangers have also been trained in weed identification and have brought in samples of suspicious plants. However, much of the project area is overgrown by shrubs and blocked by trees downfall so that it is inaccessible. No additional surveys were feasible or required. The evaluation of risks from invasive plant species is based an Invasive Plant Risk assessment of known sites in relation to the project area and access routes.

Analysis Issues and Measures

Will project activities harm or enhance sensitive or survey and manage plant populations or increase the risk of invasive plants.

The action alternative is evaluated on its potential to affect habitat for rare plant species or increase the risk of invasive plant species.

Mitigation: The action alternative was designed to avoid or minimize potentially adverse impacts to rare plants, and minimize the risk of invasive plant introduction or spread. Measures to prevent the introduction of invasive plants would also be taken to protect habitat quality and are discussed below.

Measures: Probability of detrimental impacts to plants as estimated by amount and degree of ground disturbance in populations or suitable habitat. The risk of invasive plants introduction or spread are defined by the Risk Assessment.

Affected Environment

Mixed conifer and high elevation forests in the area were burned in the 2003 B&B Fire and 2007 GW Fire and the post-fire environments are dominated by nitrogen fixing shrubs such as manzanita and snowbrush. Downed wood has blocked many areas and continues to increase as dead trees fall.

Sensitive and Survey and Manage Plant Species- No Sensitive or Survey and Manage Species or their habitats are known to occur in the immediate areas affected by the project.

Invasive Plants

Aggressive, non-native, invasive plant species can displace native plant communities causing long-lasting management problems. In displacing native vegetation, invasive plant species can increase fire hazards, reduce the quality of recreational experiences, poison livestock, and replace wildlife forage. By simplifying complex plant communities, invasive plants reduce biological diversity and threaten rare habitats. Devegetated areas are vulnerable to invasive plant introduction. Control efforts are ongoing

through the Forest Invasive Plant Program.

Invasive plant species are found in the project area along the Jefferson Lake Trail at the trailhead parking area paddock and on the from Jefferson Lake trail south of Cougar Springs (Veverka 2011). The trail has an infestation of cheatgrass (*Bromus tectorum*) and mullein (*Thapsus verbascum*. The infestation of mullein is about 1,200 sq.ft. Cheatgrass is more widespread along the trail. It is possible that horses or contaminated feed and/or firefighting efforts during the Jefferson Complex fire or other fires introduced these plants.

Alternative 1 –No Action

Effects to Sensitive Plant Species

Under the No action alternative there are no expected effects to Sensitive plant species because these areas are trails and trail structures which do not provide habitat. No known populations or habitat occur in these areas.

Effects to Survey and Manage Plant Species

Under the No action alternative there are no expected effects to Survey and Manage plant species because these areas are trails and trail structures which do not provide habitat. No known populations or habitat occur in these areas.

Effects to Invasive Plant Species

Under the No action alternative the risk of Invasive Plant introduction is likely to continue as people and horses utilize or attempt to utilize portions of these trails. There is a moderate risk of spread through recreational use (see assessment below). Peoples clothing and shoes can act as vectors which spread invasive plant seeds (Mount and Pickering 2009). Horses eating weedy hay can also spread invasive plants seeds which pass through their digestive system (Weaver and Adams, 1996; Quinn, et al. 2010, Wells and Lauenroth 2007). Seeds are also spread by wildlife, vehicles, wind and water movement.

Alternative 2 – Proposed Action

Direct and Indirect Effects

Effects to Sensitive Plant Species

Under the Action alternative there are no expected effects to Sensitive plant species because these areas are trails and trail structures which do not provide habitat. No known populations or habitat occur in these areas.

Effects to Survey and Manage Plant Species

Under the Action alternative there are no expected effects to Survey and Manage plant species because these areas are trails and trail structures which do not provide habitat. No known populations or habitat occur in these areas.

Effects to Invasive Plant Species

Under the Action alternative there are no expected effects or increase in risk of invasive plant species if design criteria/mitigation measures are followed. The risk of invasive plant introduction is lower than in the no action alternative because recreational use will decrease and reduce vectors which introduce weed seed such as horses, unapproved hay or feed, and hiker's boots and clothing (see above). The area would continue to revegetate through passive recovery or transplanting. Control of the known existing invasive plant population needs to be continued. Mitigation measures are required.

Invasive Plant Species Risk Assessment

Forest Service Manual direction requires that Invasive Plants Risk Assessments be prepared for all projects involving ground-disturbing activities. For projects that have a moderate to high risk of

introducing or spreading invasive plants, Forest Service policy requires that decision documents must identify invasive plants control measures that will be undertaken during project implementation.

Risk Ranking

Deschutes National Forest has developed a standardized invasive plants risk assessment process to be conducted as a part of the project planning process. Risk rankings are based on the following sets of criteria.

High Risk results if:

- Known weeds in or adjacent to project area. YES on access routes and some trailheads
- Any of vector #s 1-8 in project area. YES
- Project operations in or adjacent to weed sites. NO

Moderate Risk results if:

- Any of vector #s 1-5 are present in project area. YES, Horses

Low Risk results if:

- Any of vector #s 6-8 present in project area,
- OR
- Known weeds present in or adjacent to project area, even if vectors lacking.
- Vectors ranked in order of weed introduction/spread risk:
- Heavy equipment (implied ground disturbance). NO
- Importing soil/cinders/gravel. NO
- Use by OHVs. NO
- Grazing (long-term disturbance). NO
- Pack animals (short-term disturbance) YES
- Plant restoration. NO- Native plants transplanted only- no imported plants or soil
- Use by recreationists. YES
- Presence of USFS project vehicles. NO

Using this system of analysis, the risk of introduction and spread of invasive plants due to the implementation of this project has been determined to be *MODERATE*. This rating is attributable to the presence of weed populations and vectors. Mitigation measures are required to reduce this risk. See Resource Protection Measures section of the EA for required mitigation measures.

Heritage

This environmental assessment incorporates by reference (as per 40 CFR 152.21) the Heritage specialist report and other technical documentation used to support the analysis and conclusions of this environmental assessment. The entire report is in the project record which is located at the Sisters Ranger District office in Sisters, Oregon.

Cultural Resources

All known cultural resources located within the area of potential effect (APE) would be flagged for avoidance prior to commencement of the project.

If previously unknown items of prehistoric or historical value are discovered or disturbed during project work, activities will cease in the area affected and the District Archaeologist will be notified. A mitigation plan would be developed in order to address the effects of the project on the resource.

Existing Condition

The areas of ground disturbance within the APE have been previously inventoried. During the previous inventories one site was identified within the APE. The site is pre-contact in nature and associated with Native American resource exploitation. The archaeological site has not been evaluated for its eligibility

for listing on the National Register of Historic Places. Therefore, the site will be treated as eligible until a formal determination of eligibility can be made. No other sites are known to be located within the APE. No ground disturbing activities would take place near the one known site and the area will be flagged for avoidance prior to commencement of the project.

Alternative 1 – No Action

Under this alternative, no proposed activities would be undertaken. Therefore, no Heritage resources would be affected.

Alternative 2

Direct and Indirect Effects

Known heritage sites would be avoided and/or protected; therefore, no known Heritages resources would be affected by this project. Mitigation measures are in place that would be part of contract specification should any new cultural sites be discovered during project activities.

Alternative 2 is consistent with those federal laws and guidelines for the protection of National Register of Historic Places (NRHP) eligible sites.

Cumulative Effects – All Alternatives

There are no direct or indirect effects to heritage resources from any alternatives. There are no cumulative effects associated with this project.

Recreation

This environmental assessment incorporates by reference (as per 40 CFR 152.21) the Recreation specialist report and other technical documentation used to support the analysis and conclusions of this environmental assessment. The entire report is in the project record which is located at the Sisters Ranger District office in Sisters, Oregon.

Introduction

This recreation report addresses proposed changes to five trails located within Mt. Jefferson and Mt. Washington Wilderness areas. Included are the effects of these proposed changes to the activities, setting, and experience which collectively comprise the recreation opportunities of the analysis area.

Management Direction

The Deschutes National Forest Land and Resource Management Plan (LRMP)

The LRMP guides all management activities on the Forest. It establishes overall goals, objectives, standards, and guidelines for proposed activities, including specific "management area" guidance for resource planning. The trails identified in this environmental assessment lie within the following management areas: Wilderness (MA-6), Metolius Special Forest (MA-22) and Metolius Scenic Views (MA-26). The general objectives for these areas is described in the planning framework section of this environmental assessment.

Forest Wide Standards and Guidelines

Motorized and Mechanized Equipment

M6-6 Use of motors or mechanized equipment is prohibited. The Forest Supervisor may approve exceptions for emergencies involving threats to life, health, or property. The Regional Forester may approve use of mechanized equipment for other limited situations.

Capacity

M6-22 Regulations, 36 CFR 219.18 (a), require that Wilderness management plans will 'provide for limiting and distributing visitor use of specific areas in accord with periodic estimates of maximum levels of use that allow natural processes to operate freely and that do not impair the values for which wilderness areas were created.'

M6-23 Capacity estimates for each Wilderness have been developed and they are contained in the Wilderness Plans. These figures represent the best estimates available at this time. The numbers, however, will be modified according to Limits of Acceptable Change data trends. Limits of Acceptable Change: Forest Service Researchers and managers have developed a system for establishing Wilderness capacity called the Limits of Acceptable Change (LAC). **(**The planning, Intermountain Forest and Range Experiment Station, 507 25th Street, Ogden, Utah. George H. Stankey. Also: Limits of Acceptable Change: A new Framework for Managing the Bob Marshall Wilderness Complex,' George H Stankey, Stephen F. McCool, Gerald L. Stokes, from Western Wildlands, Fall 1984). This concept recognizes that change is natural and seeks to ask the question 'how much change is acceptable. The System also recognizes that much of the impact of Wilderness use is not simply the result of too many people, but rather the kind of use, human behavior, the timing and distribution of use. The number of users is not always directly related to the amount of impact. A little use in a previously undisturbed area may cause significant changes, while a lot more use in an already disturbed area often causes only a little more impact.

M6-24 The Forest will continue to utilize an LAC approach in establishing Wilderness capacity. Physical/Biological, social and managerial standards and guidelines are provided in Regional Supplements under FSM 2322, in individual area management plans, and in the Land Management Plan for the Willamette National Forest for Wilderness which extends across the National Forest boundaries.

M6-25 When wilderness use results in impacts which exceed Wilderness LAC Standards and Guidelines or the numbers established in the Wilderness and Cascade Recreation Area Plans, the following corrective actions or sequence of actions will be taken.

Trails

Situation

Resource damage is occurring from utilization of some improperly designed and located trails and trail heads.

Objective

Provide and maintain a trail system to a standard that will meet management needs for protecting resources and distributing visitor use, eliminate duplication of routes, and minimize maintenance costs.

M6-53 Trails may be constructed and maintained: For safety of visitors, to minimize or prevent resource damage, and as legislatively directed.

M6-54 Trails will be designed, constructed, or relocated to the minimum standard needed to achieve their purpose. Trails will be located so they take the greatest advantage of environmental features the area has to offer. Most trails will receive Level II maintenance The Pacific Crest National Scenic Trail will be maintained at Level III.

M6-55 The adequacy of each trail system within each Wilderness will be assessed to determine its effectiveness in meeting Wilderness objectives. Corrective action will be implemented when any impact is intolerable or beyond that necessary to accomplish the purpose of the trail system.

Applicable Policy and Guidelines

The Wilderness Resource Spectrum (WRS) categories for the management area within which site specific project is located, should provide overall guidance to manage the site in a compatible manner with the kinds of recreation opportunities and resource objectives of the larger area. The trails identified in this environmental assessment do not exist within a vacuum and are part of the larger Wilderness landscape which they travel through. Mt. Jefferson and Mt. Washington Wilderness areas have been inventoried and are categorized within one of three WRS zones.

M6-1 Each WRS Zone is to be managed for different social objectives.

M6-2 Encounters.

Encounters with other groups should be limited to no more than **10** encounters per day in the Semi-primitive (Transition) Zone, 7 encounters per day in the Primitive Zone, and **1** encounter per day in the Pristine Zone. These standards should be met 80 percent of the time.

M6-4 Campsites.

Camps should be separated from other campsites and set back from trails, meadows, lakes, and streams at least **100** feet. No more than two other camps should be visible in the Semi-primitive (Transition) Zone, one in the Primitive Zone, and no other camps should be visible in the Pristine Zone.

M22-2 Traditional dispersed campsites, hunter camps, or areas where concentrated recreation use occurs will be recognized as being significant in producing and utilizing dispersed recreation opportunities.

M26-1 New recreational developments and changes to existing developments are permitted as long as they are consistent with the desired visual condition. When viewed from significant viewer locations, recreational facilities will meet the established visual quality standards. For viewer locations within the recreational development being viewed, established visual quality standards may not always be met.

Forest Service Manual 2323.11 establishes objectives for the management of recreation and associated objectives within Wilderness in the following order:

1. Provide, consistent with management of the area as wilderness. Opportunities for public use, enjoyment, and undertaking of the wilderness, through experiences that depend upon a wilderness setting.
2. Provide outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Forest Service Manual 2323.12 – establishes policy for the management of recreation within Wilderness in the following order:

1. Maximize visitor freedom within the wilderness. Minimize direct controls and restrictions. Apply controls only when they are essential for protection of the wilderness resource and after indirect measures have failed.
2. Manage for recreation activities that are dependent on the wilderness environment so that a minimum of adaptations within wilderness are necessary to accommodate recreation.

Forest Service Manual 2323.13f – establishes policy on the management of the transportation system within Wilderness in the following order:

Design, construct and maintain the transportation system in wilderness to provide access to and within a wilderness that meets the wilderness objectives described in the forest plan.

1. Trails. Trails are an acceptable improvement. Construct and maintain trails to standards described in FSH 2309.18, Trails Management Handbook. National Recreation Trails are generally not designated within wilderness (FSM 2350).

a. Design and locate trails so that non-motorized and non-mechanical equipment can be used for construction and management.

b. Design and locate trails to fit into the natural landscape as unobtrusively as possible

c. Maintain trails by non-motorized methods except for situations described in section 2326.

Forest Service Manual 2353.25 – establishes policy on the Development, Reconstruction, Maintenance, and Decommissioning of trails in the following order:

1. Follow the direction in FSH 2309.18, Trails Management Handbook, chapters 10 and 20, when developing, reconstructing, or maintaining trails.
2. Consider available resources and maintenance costs when deciding to construct new trails, reconstruct existing trails, or convert other types of routes to NFS trails.
3. Consider decommissioning trails when alternative routes are available.

Forest Service Handbook 2309.18, sec.14.2 – establishes definitions and standards for all types of trails using a table for Trail Class Matrix. The matrix arranges trail categories along a continuum, from Trail Class 1 to Trail Class 5. General Trail Class definitions are:

- Trail Class 1: Minimally Developed
- Trail Class 2: Moderately Developed
- Trail Class 3: Developed
- Trail Class 4: Highly Developed
- Trail Class 5: Fully Developed

See Appendix A for a full description of Trail Class.

Existing Condition

Mt. Jefferson and Mt. Washington have been inventoried and assigned a variety of Wilderness Resource Spectrum (WRS) zones which establish recreation and biophysical management targets (See Figures 2 and 3). All trail corridors within Wilderness and their associated destination or termini are assigned a WRS classification that typically differs from the surrounding area. For instance, the Jefferson Lake trail (#4001) has been assigned WRS primitive whereas the surrounding area has been assigned WRS pristine. This project area includes individual trails within the Wilderness in which they exist.

The WRS classification for all of the trails in this document is primitive. This WRS category offers visitors an opportunity to recreate in an area relatively free of signs, information or other management controls. Wilderness offers visitors an opportunity to experience an environment where risks and hazards are not managed or mitigated. Self-reliance, self-discovery and challenge are central elements of the setting and experience. Signs are only installed at system trail intersections or for regulatory purposes. Trail signing standards in this environment communicate the trail name and number only. Occasionally, small foot bridges and other erosion control features such as water bars, grade dips or crib walls would be installed on trails to mitigate resource damage. The Deschutes LRMP states that most trails in Wilderness should be managed to the Trail Class 2 or "moderately developed" standard.

Jefferson Lake Trail #4001 (Trail Class 3)

The Jefferson Lake Trail #4001 begins at the Jefferson Lake trail head located near the Warm Springs Indian Reservation and Candle Creek (a tributary of the Metolius River) at the end of Forest Service road 12001292. This trail generally travels in an east/west manner staying between Sugar Pine Ridge and Bear Butte and its associated lava flow. Trail #4001 terminates at its intersection with the Cabot Lake trail #4003 and Patsy Lake.

Activities

The Jefferson Lake Trail (#4001) is located within Mt. Jefferson Wilderness area. Visitors may only walk or use stock animals on this trail. Hunting and fishing are permitted within Mt. Jefferson Wilderness. Several permitted Outfitter and Guides including Northwest Outward Bound, Timberline Mountain Guides, Halligan Llamas and others have access to this trail and the surrounding area for their operations. Visitors may use the area in a dispersed manner including camping and traveling off trail. Use of this trail and surrounding area has historically low use. The trail is relatively long (9.1 miles one way), heavily forested, has very little water and offers visitors occasional views of the Bear Butte and surrounding area. Other trails in the area offer similar access to wilderness destinations.

Setting and Experience

The majority of this trail was burned and has been overgrown by seral brush, making it extremely difficult to navigate. Access is difficult and it would take thousands of man hours annually to maintain above Trail Class 1 standards.

Brush Creek Trail #4004 (Trail Class 3)

The Brush Creek trail #4004 begins at the Brush Creek trail head located near Cabot Lake trail head and the terminus of Forest Service Road 1230900. This trail generally travels in an east/west manner and ascends the ridge above Brush Creek and terminates at its intersection with the Pacific Crest National Scenic Trail #2000.

Activities

The Brush Creek trail #4004 is located within the Mt. Jefferson Wilderness area. Visitors may walk or use stock animals on this trail only. Hunting and fishing are permitted within Mt. Jefferson Wilderness. Several permitted Outfitter and Guides including Northwest Outward Bound, Timberline Mountain Guides, Halligan Llamas and others have access to this trail and the surrounding area for their operations. Visitors may use the area in a dispersed manner including camping and traveling off trail. Use of this trail and surrounding area has historically low use. The trail is relatively short (4.1 miles one way), is heavily forested, has very little water and offers visitors views of the Brush Creek and Shirley Lake areas. Other trails in the area offer similar access to wilderness destinations.

Setting and Experience

The first mile of this trail was burned and has been overgrown by seral brush, making it nearly impassable. The trail has received light use and even sections that were not burned over may be difficult to find. There is a unique section of trail that cannot be traveled safely by stock.

Sugar Pine Ridge Trail #4002 (Trail Class 1)

Sugar Pine Ridge Trail is accessed at the Jefferson Lake trail head located near the Warm Springs Indian Reservation and Candle Creek (a tributary of the Metolius River) at the end of Forest Service road 12001292.The trail begins approximately 1/3 mile west of the Jefferson Lake trail head where a small foot bridge crosses Candle Creek. This trail generally travels in an east/west manner and ascends from Candle Creek drainage to the summit of Sugar Pine Ridge and then descends across lava flows off of the south flank of Forked Butte and terminates into the Cabot Lake trail #4003 and Junction Lake.

Activities

The Sugar Pine Ridge trail (#4002) is located within Mt. Jefferson Wilderness area. Visitors may walk or use stock animals on this trail only. Hunting and fishing are permitted within Mt. Jefferson Wilderness. Several permitted Outfitter and Guides including Northwest Outward Bound, Timberline Mountain Guides, Halligan Llamas and others have access to this trail and the surrounding area for their operations. Visitors may use the area in a dispersed manner including camping and traveling off trail. Use of this trail and surrounding area has historically low use. The trail is relatively long (6.9 miles one way), is heavily

forested, has very little water and offers visitors views of Bear Butte, Forked Butte and surrounding area. Other trails in the area offer similar access to wilderness destinations.

Setting and Experience

This trail was burned and has been reclaimed by seral brush, sometimes six to eight feet high, making it impassable. The majority of the trail tread has naturally re-vegetated and is no longer visible. Effectively, this trail does not exist on the ground.

Minto Lake Trail #4006 (Trail Class 1)

The Minto Lake Trail begins at the Bear Valley trail head which is located at the end of Forest Service Road 1235000. The Bear Valley trail head also serves as the starting point for the Rock Pile Lake trail and the Metolius-Windigo trail. This trail generally travels in an east/west manner and gently ascends to Minto Lake basin and intersects with the Pacific Crest National Scenic Trail #2000 and the Wasco Lake trail #4014.

Activities

The Minto Lake trail #4006 is located within the Mt. Jefferson Wilderness area. Visitors may walk or use stock animals on this trail only. Hunting and fishing are permitted within Mt. Jefferson Wilderness. Several permitted Outfitter and Guides including Northwest Outward Bound, Timberline Mountain Guides, Halligan Llamas and others have access to this trail and the surrounding area for their operations. Visitors may use the area in a dispersed manner and including camping and traveling off trail. Use of this trail and surrounding area has historically low use. The trail is relatively short (4 miles one way), is heavily forested, has very little water and offers visitors periodic views of Bear Valley, the Metolius basin and immediate surroundings. Other trails in the area offer similar access to wilderness destinations.

Setting and Experience

Portions of the Minto Trail have burned and have been reclaimed by seral brush, making it nearly impassable in those locations. The trail was poorly designed and is a maintenance challenge as it travels through wetlands and has drainage issues on steep slopes. This trail duplicates wilderness access provided by the Rockpile Lake Trail, which leaves from the same trailhead.

Mt. Washington Wilderness Area

Dry Creek/Hortence Lake Trail #4050 (Trail Class 1)

The Dry Creek/Hortence Lake Trail #4050 can be started at two different locations. The Dry Creek trail head is located at the terminus of Forest Service Road 1028690. The Hortence Trail Head is located west of Little Cache Mountain on Forest Service Road 1028500. This trail generally travels in a north/south manner, through dense forest with infrequent views and does not intersect with other trails within Mt. Washington Wilderness.

Activities

The Dry Creek/Hortence Lake trail #4050 is located within the Mt. Washington Wilderness area. Visitors may walk or use stock animals on this trail only. Hunting and fishing are permitted within Mt. Washington Wilderness. Several permitted Outfitter and Guides including Northwest Outward Bound, Timberline Mountain Guides, Halligan Llamas and others have access to this trail and the surrounding area for their operations. Visitors may use the area in a dispersed manner and including camping and traveling off trail. Use of this trail and surrounding area is historically low use. The trail is relatively short (4.8 miles one way), is heavily forested, has very little water and offers visitors infrequent views of immediate surroundings.

Setting and Experience

The Dry Creek Trail experiences very little use and has a heavy load of blowdown across it. These conditions make it difficult or impossible to find in many locations and nearly impassable.

Analysis Methods

Direct, indirect, and cumulative effects to recreation resources were analyzed by determining the degree of disturbance directly associated with the different types of proposed activities, any secondary effect indirectly associated with the proposed action, and the cumulative effects of all actions affecting the resource within the area of potential effect.

A. Key attributes that contribute to the recreational value of the area

The analysis of effects of the action alternative is based on the following assumptions:

A. Effects of the alternatives are based on descriptions in this EA.

B. Wilderness Resource: Maintenance of Wilderness Character and alignment of WRS management objectives by changing the Trail Class of two trails located within Mt. Jefferson Wilderness area and decommissioning three trails within Mt. Jefferson and Mt. Washington Wilderness areas.

C. Recreation Resources: Change to recreation infrastructure, public access, public safety and recreation use/experience.

Recreation infrastructure:

- Damage and/or change to recreation infrastructure managed by the US Forest Service. This includes changes to existing trails Trail Class and the decommissioning of trails.

Public Access:

- Type and scope of access affected

Safety:

- Effects to public safety including accurate communication of trail conditions.

Issues and Measures

Issue: The action alternative could affect recreation resources by modifying the trail class of two system trails and decommissioning three others within the Mt. Jefferson and Mt. Washington Wilderness Areas.

Measure: Number of system trail miles affected by the decision.

Issue: The action alternative could displace use from trails that are removed or maintained at lower standards, to trails that are better maintained. This may reduce wilderness values such as solitude on the better maintained trails. Increased use also has the potential to increase resource damage to wilderness destinations.

Measure: People At One Time (PAOT) within a certain Wilderness Resource Spectrum (WRS) is the approved way to express capacity within a wilderness. Resource damage is measured in number of campsites in an area, square footage of campsites, campfire rings, and tree damage.

Issue: The action alternative could encourage users to build illegal trails into these areas.

Measure: Number of illegal trail miles constructed.

Alternative 1- No Action Ecological Trend

Under the No Action alternative, current plans would continue to guide management of the project area. Trails identified in the proposed action would continue to be a low maintenance priority and would result

in the continued accumulation of dead fall, expanded erosion issues, increased brush growing into trails and the persistent safety issues that come with having trails on a map that either do not exist or are difficult to find on the ground.

Alternative 2 – Proposed Action

Direct and Indirect Effects

Trail Systems

Changing approximately 13.2 miles of trail from Trail Class 3 to Trail Class 1 would reduce the level of maintenance that those trails receive, while decommissioning 15.7 miles of trails would permanently remove them from the trail system. The direct effects of those actions would reduce easy public access to some areas of the wilderness.

These areas would continue to be open to the public and there are other trails that provide access to wilderness destinations, but travel may be more difficult. It could concentrate use on open and better maintained trails in the area, which could increase resource damage to those trails systems.

The proposed action would increase public safety as decommissioned trails would be removed from the map. This action would help visitors who see a trail on a map, but then are unable to find it on the ground. This would also reduce the number of search and rescue missions to these areas.

The Dry Creek and Hortense Lake Trailheads would be officially closed, which would not change any of the conditions on the ground. There are no facilities at either location and there would be no changes at either location.

The proposed action could improve the trail system by increasing public safety, concentrating use on open trails, and increasing maintenance on open trails.

Wilderness Character and Carrying Capacity

While these trails have historically received little use, the proposed action may displace use to other trails in the area. This could increase use at other trails and trailheads. Increased use may increase the measurement of Persons At One Time (PAOT), as well as increase resource damage to wilderness resources.

By making travel more difficult, it would reduce use of the areas around these trails. This change could increase Wilderness Character by providing areas that are undeveloped, natural, and with opportunities for solitude and personal challenge. There are many areas on the forest which provide easy access to wilderness destinations through well maintained trails. The proposed action would provide opportunities for users who want a more challenging experience.

The proposed changes could benefit wilderness resources in areas where trails are being decommissioned and changing the Trail Class. It could also increase resource damage as more people on the trails that remain open, without a change in trail class, could reduce opportunities for solitude and increase the size and number of campsites at wilderness destinations.

The proposed action could increase Wilderness Character by providing an opportunity for solitude and personal challenge and reducing the PAOT measurement in those areas.

Illegal Trail Construction

Reducing the Trail Class and decommissioning trails may encourage the public to create illegal user trails to access wilderness areas. User trails are often designed poorly with no structures to remove water from the trail which could contribute to erosion and sedimentation of water sources. Ultimately, construction of illegal trails has the potential to create long term resource damage.

It is unlikely that illegal trail construction would occur as these areas are several miles long and in burns with an abundance of ground vegetation, making trail building difficult. If illegal trail construction occurs, the public would be educated as to why we do not want trails in these areas and the trails would be restored to their natural condition.

The proposed action may encourage illegal trail construction in the area, but due to the density of vegetation and the long length of the probable trail sections, it is unlikely to be a problem.

Cumulative Effects

Cumulative effects are associated with past, present, and future projects that overlap in time and space. The cumulative effects area for the recreation analysis is the boundaries of the Mt. Jefferson and Mt. Washington trails project area over ten years.

With the increasing population (U.S. Census 2016, 2015 Central Oregon Profile 2015), along with the surge in the tourist economy (Bend Chamber of Commerce 2015) in Central Oregon, use of trails and wilderness is going to increase in the future. Decommissioning trails and changing the trail class may concentrate use on open or better maintained trails. This concentration of use may increase resource damage to open trails, wilderness destinations that they service, as well as diminish the wilderness character of these areas by reducing the chance to find solitude.

Other Disclosures

Civil Rights and Environmental Justice

There have been no issues or concerns raised with adverse effects to Native American Tribes.

There are no known direct, indirect, or cumulative effects on Native Americans, minority groups, women, or civil rights beyond effects disclosed in the Deschutes Land and Resource Management Plan.

Executive Order 12898 on environmental justice requires federal agencies to identify and address any disproportionately high and adverse human health or environmental effects on minority and low income populations. The action alternatives would have no disproportionately high or adverse effects to minority or disadvantaged groups qualifying under the environmental justice order. Scoping and widely circulated media articles have raised no issues or concerns associated with the principles of environmental justice. The action alternatives do not have a disproportionately high and adverse human health effects, high or adverse environmental effects, substantial environmental hazard or effects to differential patterns of consumption of natural resources. All interested parties would continue to be involved with commenting on the project and the decision making process.

Congressionally Designated Areas

No congressionally designated areas such as Wilderness or Wild and Scenic Rivers would be adversely affected by the proposed activities. No significant irreversible or irretrievable commitment of resources would occur under Alternative 2 (Proposed Action).

Prime Farm and Forest Lands and Wetlands

The Secretary of Agriculture issued Memorandum 1827 which is intended to protect prime farm lands and range lands. The project area does not contain any prime farmlands or rangelands. Prime forestland is not applicable to lands within the National Forest System. National Forest System lands would be managed with consideration of the impacts on adjacent private lands. Prime forestlands on adjacent private lands would benefit indirectly from a decreased risk of impacts from wildfire. There would be no direct, indirect, or cumulative adverse effects to these resources and thus are in compliance with the Farmland Protection Act and Departmental Regulation 9500-3, “Land Use Policy.”

Compliance with Other Polices, Plans Jurisdictions

The alternatives are consistent with the goals, objectives and direction contained in the Deschutes National Forest Land and Resource Management Plan except for the described forest plan amendments needed, and the accompanying Final Environmental Impact Statement and Record of Decision dated August 27, 1990 as amended by the Regional Forester's Forest Plan Amendment #2 (6/95) and Inland Native Fish Strategy, and as provided by the provisions of 36 CFR 219.35 (f) (2005), which address Management Indicator Species. The project is also consistent with the *2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines*.

Implementation of Alternative 1 (No Action) or Alternative 2 (Proposed Acton) would be consistent with relevant federal, state and local laws, regulations, and requirements designed for the protection of the environment including the Clean Air and Clean Water Act.

Irretrievable and Irreversible Commitment of Resources

NEPA requires that environmental analysis include identification of "…any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources have on future generations. No significant irreversible or irretrievable commitment of resources would occur under Alternative 2 (Proposed Action).

- **Irreversible**: Those resources that have been lost forever, such as the extinction of a species or the removal of mined ore. The proposed activities would result in a commitment of rock for road maintenance.
- **Irretrievable**: Those resources that is lost for a period of time, such as the temporary loss of timber productivity in forested areas that are kept clear for use as a power line rights-of way or road.

CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM MEMBERS:

Michael Keown	Environmental Coordinator
Jason Fisher	Team Leader – Wilderness Specialist
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Julie York	Wildlife Biologist
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Maret Pajutee	Botanist
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FEDERAL, STATE, AND LOCAL AGENCIES:

Jeff Mast, U. S Forest Service, Region Six Trails Contact

OTHERS:

Jefferson County Sherriff's Department

APPENDICES

Appendix A: Trail Class Matrix

il Class Matrix

is the prescribed scale of development for a National Forest System trail, representing its intended design and manageme
il Classes are general categories reflecting trail development scale, arranged along a continuum. Trail Class descriptors re
ls in each class. Trail-specific exceptions may occur for any Trail Class descriptor, provided that the general intent of the
Trail Class is retained.

ropriate Trail Class for each National Forest System trail or trail segment based on the management intent in the applicabl
lan, travel management direction, trail-specific decisions, and other related direction. Apply the Trail Class that most closel
nt intent for the trail or trail segment, which may or may not reflect the current condition of the trail.

Trail Class 1 Minimally Developed	Trail Class 2 Moderately Developed	Trail Class 3 Developed	Trail Class 4 Highly Developed	Trail Fully
• Tread intermittent and often indistinct • May require route finding • Single lane with no allowances constructed for passing • Predominantly native materials	• Tread continuous and discernible, but narrow and rough • Single lane with minor allowances constructed for passing • Typically native materials	• Tread continuous and obvious • Single lane, with allowances constructed for passing where required by traffic volumes in areas with no reasonable passing opportunities available • Native or imported materials	• Tread wide and relatively smooth with few irregularities • Single lane, with allowances constructed for passing where required by traffic volumes in areas with no reasonable passing opportunities available • Double lane where traffic volumes are high and passing is frequent • Native or imported materials • May be hardened	• Tread wide and gener • Single lane turnouts wi volumes ai moderate • Double lan volumes ai high • Commonly asphalt or material
• Obstacles common, naturally occurring, often substantial and intended to provide increased challenge • Narrow passages; brush, steep grades; rocks and logs present	• Obstacles may be common, substantial, and intended to provide increased challenge • Blockages cleared to define route and protect resources • Vegetation may encroach into trailway	• Obstacles may be common, but not substantial or intended to provide challenge • Vegetation cleared outside of trailway	• Obstacles infrequent and insubstantial • • Vegetation cleared outside of trailway	• Obstacled • Grades t

rail ibutes	Trail Class 1 Minimally Developed	Trail Class 2 Moderately Developed	Trail Class 3 Developed	Trail Class 4 Highly Developed	Trail Class Fully Develope
tructed tures & rail ments	• Structures minimal to non-existent • Drainage typically accomplished without structures • Natural fords • Typically no bridges	• Structures of limited size, scale, and quantity; typically constructed of native materials • Structures adequate to protect trail infrastructure and resources • Natural fords • Bridges as needed for resource protection and appropriate access	• Structures may be common and substantial; constructed of imported or native materials • Natural or constructed fords • Bridges as needed for resource protection and appropriate access	• Structures frequent and substantial; typically constructed of imported materials • Contrasted or natural fords • Bridges as needed for resource protection and user convenience • Trailside amenities may be present	• Structures frequent continuous; typically constructed of impor materials • May include bridges boardwalks, curbs, handrails, trailside amenities, and simil features
gns[2]	• Route identification signing limited to junctions • Route markers present when trail location is not evident • Regulatory and resource protection signing infrequent • • Destination signing, unless required, generally not present • • Information and interpretive signing generally not present	• Route identification signing limited to junctions • Route markers present when trail location is not evident • Regulatory and resource protection signing infrequent • • Destination signing typically infrequent outside of wilderness; generally not present in wilderness • Information and interpretive signing not common	• Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing may be common • Destination signing likely outside of wilderness; generally not present in wilderness • Information and interpretive signs may be present outside of wilderness	• Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing common • Destination signing common outside of wilderness; generally not present in wilderness • Information and interpretive signs may be common outside of wilderness • Accessibility information likely displayed at trailhead	• Route identification at junctions and for reassurance • Route markers as n for user reassurance • Regulatory and reso protection signing co • Destination signing c • Information and inte signs common • Accessibility informa likely displayed at tra
ical eation irons & rience[3]	• Natural, unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Primitive to Semi-Primitive	• Natural, essentially unmodified • ROS: Typically Primitive to Roaded Natural Typically • WROS: Typically Primitive to Semi-Primitive	• Natural, primarily unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Semi-Primitive to Transition	• May be modified • ROS: Typically Semi-Primitive to Rural Roaded Natural to Rural setting • WROS: Typically Portal or Transition	• May be highly modi • Commonly associate visitor centers or hig recreation sites • ROS: Typically Roa Natural to Urban • Generally not preser Wilderness

National Quality Standards for Trails. Potential Appropriateness of Trail Classes for Managed Uses, Design Parameters, and other related guidance, refer to FSH 2353, FSH 2
other applicable agency references.

standards and guidelines for the use of signs and posters along trails, refer to the Sign and Poster Guidelines for the Forest Service (EM-7100-15).

Trail Class Matrix shows the combinations of Trail Class and Recreation Opportunity Spectrum (ROS) or Wilderness Recreation Opportunity Spectrum (WROS) settings that c
ir, although all Trail Classes may and do occur in all settings. For guidance on the application of the ROS and WROS, refer to FSM 2310 and 2353 and FSH 2309.18.

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Appendix B: Wilderness Resource Spectrum

This Plan recognizes that different areas within Wilderness can and should provide different opportunities and experiences Therefore, each Wilderness has been divided into zones called Wilderness Resource Spectrum **(WRS)** Zones. Each zone has its own definition and set of management objectives that will make it distinct from the other zones. The WRS zones are:

Semi-primitive Zones

Area Characteristics:

This area is characterized by predominately unmodified natural environment of moderate size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present but are subtle Facilities are only provided for the protection of Wilderness resource values rather than visitor comfort or convenience Materials should be natural or natural appearing. Some relatively small transition zones may also exist adjacent to the semi-primitive zone. These areas are usually near heavily used trailheads and receive predominantly day use at a level slightly greater than that within the semi-primitive zone. The transition zone is not intended to be a permanent part of the WRS. The long term objective is to manage these areas so that they regain the characteristics of the semi-primitive zone. Experience Opportunity: Moderate opportunities for exploring and experiencing isolation (from the sights and sounds of people); independence; closeness to nature; tranquility and self-reliance through the application of no-trace and primitive skills in a natural environment that offers a moderate to high degree of challenge and risk..

Primitive Zone

Area Characteristics:

This area is characterized by essentially unmodified natural environment. Concentration of users is low and evidence of human use is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Only essential facilities for resource protection and safety are used and are constructed of native or natural appearing materials. No facilities for comfort or convenience of the user are provided. Visitors are encouraged to disperse to desirable existing sites to minimize contacts with other groups. Experience Opportunity; High opportunity for exploring and experiencing considerable isolation, solitude and self-reliance through application of primitive recreation skills in an environment that offers a high degree of challenge and risk.

Pristine Zone

Area Characteristics:

This area is characterized by an extensive unmodified natural environment. Natural processes and conditions have not and will not be measurably affected by the actions of users. The area is managed to be **as** free as possible from the influence of human activities. People are only brief visitors. Essentially no facilities are required to protect the Wilderness resource. Terrain and vegetation allow extensive and challenging cross-country travel. Experience Opportunity: Provides the most **out**standing opportunity for isolation and solitude, free from evidence of past human activities and with very infrequent encounters with other users. The user has outstanding opportunities to travel cross-country utilizing a maximum degree of primitive skills, often in an environment that offers a high degree of challenge and risk.

Social Setting Objectives

M6-1 Each WRS Zone is to be managed for different social objectives.

M6-2 Encounters.

Encounters with other groups should be limited to no more than **10** encounters per day in the Semi-primitive (Transition) Zone, 7 encounters per day in the Primitive Zone, and **1** encounter per day in the Pristine Zone. These standards should be met 80 percent of the time.

M6-4 Campsites.

Camps should be separated from other campsites and set back from trails, meadows, lakes, and streams at least **100** feet. No more than two other camps should be visible in the Semi-primitive (Transition) Zone, one in the Primitive Zone, and no other camps should be visible in the Pristine Zone.

Appendix C: Wildlife Project PDC Compliance Checklist

Wildlife Project PDC Compliance Checklist.

Project Design Criteria Compliance Checklist (attach to BE/BA)	Applies to project	Project Complies
Spotted Owl (all land allocations)		
A.1. Do not work disruptively w/in ¼ mile (1 mi. for blasting) of spotted owl activity center 3/1-9/30	NO	
A.2. Do not work outside of restriction period unless emergency work is warranted	NO	
A.3. Do not remove hazard trees unless DWD needs are met in project area as in LRMP or LSRA	NO	
A.4. Only remove hazard trees if they pose a liability to recreation residences, private landowners, campgrounds, or special use permittees	NO	
A.5. Survey projects with NRF to Regional Protocol or implement seasonal restriction	NO	
A.6. Use smoke management forecasts in order to minimize smoke entering into suitable habitat	NO	
A.7. Options for reducing hazards trees should be explored: topping, closing or moving sites, etc.	NO	
Spotted Owl (CHU's, LSR's, and Core Areas)		
B.1. Do not remove, downgrade, or degrade constituent elements of critical habitat	NO	
B.2. Promote LSOG conditions where plant associations are capable of sustaining NRF	NO	
B.3. DWD objectives are met by plant association as described in the desired LSR condition	NO	
B.4. Stands not capable of becoming NRF should be managed to provide for dispersal habitat	NO	
Spotted Owl (Matrix)		
C.1. Maintain 100 acres of NRF habitat (core area) around all known activity centers	NO	
C.2. Maintain all late-successional patches in fifth field watersheds currently comprised of 15% or less late-successional forests	NO	
C.3. Maintain dispersal habitat between 100-acre core areas and LSRs	NO	
C.4. Maintain all existing NRF habitats for connectivity	NO	
C.5. Promote climatic climax LSOG habitat in plant associations capable of sustaining NRF habitat	NO	
C.6. On lands not capable of becoming NRF promote that development of habitat for other LSOG dependent species	NO	
C.7. Maintain 100 acres of NRF habitat (core areas) around all newly discovered activity centers	NO	
Greater Sage Grouse (all occupied habitats)		
A.1. Do not use prescribed fire in occupied sage grouse habitats.	NO	
A.2. Include native sagebrush, forbs (especially legumes) and grasses in seed mixtures re-seeded into occupied sage grouse habitats	NO	
A.3. Do not develop springs for livestock water.	NO	
A.4. Do not construct power lines, communication towers or other tall structures within 2 miles of occupied sage grouse habitat	NO	
A.5. Do not use pesticides in occupied sage grouse habitat	NO	
A.6. Treat noxious weeds & other invasive plants in sage grouse habitat	NO	
A.7. Do not allow winter/drought supplemental feeding of livestock in occupied sage grouse habitat	NO	
A.8. Do not increase existing road densities in occupied sage grouse habitat	NO	
Greater Sage Grouse (all occupied habitats) continued.		
A.9. Do not develop new campgrounds in occupied sage grouse habitat	NO	
A.10. Do not pursue or approve land exchanges that transfer occupied sage grouse habitat	NO	

Project Design Criteria Compliance Checklist (attach to BE/BA)	Applies to project	Project Complies
A.11. Grazing use levels should be at light use (21 to 40% utilization or less)	NO	
A.13. Do not locate wind-generated power structures in occupied sage grouse habitat or within 2 miles of leks	NO	
A.14. Do not allow surface occupancy with 1 km (0.6 mi.) of occupied sage grouse habitat	NO	
A.15. Do not allow habitat loss by mineral development and related actions in high quality nesting, early and late brood rearing, and winter habitats.	NO	
A.16. Vegetation treatments are appropriate to soil, climate and landform of the area. Vegetative manipulations benefit health of sage grouse habitat.	NO	
A.17. Reduce wild horse numbers (if wild horse grazing determined to detrimentally affect sage grouse habitat quality.	NO	

Greater Sage Grouse (breeding habitat)		
B.1. Maintain sagebrush CC between 15%-25%, height between 15-30 in, herbaceous cover >7 in with 15% or greater CC for grasses and 10% or greater for forbs	NO	
B.2. Do not manipulate sagebrush and it's herbaceous understory within 4 miles of mapped leks being used by non-migratory sage grouse	NO	
B.3. Do not construct any above-ground structures within 0.6 mi of mapped leks	NO	
B.4. In an analysis area (100,000 ac), do not manipulate habitat if ≥ 40% of original breeding habitat has been previously lost or degraded	NO	
B.5. Do not authorize energy or mineral associated facilities within 1 km (0.6 mi.) of leks	NO	
B.6. Prohibit human activities within .3 mi. of leks from 1 hour before sunrise until 4 hours after sunrise and 1 hour before sunset until 1 hour after sunset from 2/15-5/15	NO	
B.7. In Wyoming Big SB, do not treat >20% of habitat in 30yrs (20 yrs for mountain big SB)	NO	
B.8. Do not concentrate livestock or place salt or mineral supplements on or within ¼ mi. of mapped sage grouse leks during breeding season	NO	
B.9. Do not authorize events of more than 25 people in sage grouse breeding habitat	NO	
B.10. Do not conduct vegetation treatments or improvement projects in breeding habitats 2/15-6/30	NO	
Greater Sage Grouse (summer-late brood rearing habitat [mapped as summer and fall use areas])		
C.1. Maintain sagebrush CC between 10%-25%, >15% CC for grasses & forbs	NO	
C.2. Do not remove sagebrush habitat within 0.2 mi. of sage grouse foraging areas	NO	
C.3. If sagebrush reduction projects are needed because CC exceeds 35%, use brush beating in strips 10 to 25 feet wide in areas with high shrub CC	NO	
C.4. Install wildlife escape ramps in all existing and new livestock water troughs	NO	
Greater Sage Grouse (winter habitat [mapped as winter or year-long habitats])		
D.1. Sagebrush should protrude at least 10-14in above the snow with a CC of 10 to 30%	NO	

Appendix D: Botany Pre-field Summary Plant List

Pre-field review summary of Deschutes Forest Sensitive Plant List for project area

R6 Sensitive Plant Species Documented or Suspected on the Deschutes National Forest	Range	Habitat	Known occurrence on Sisters RD? On Forest?	Probability of Occurrence in Project Area
Agoseris elata (vascular plant)	Washington and Oregon Cascades	Forest openings and forest edges adjacent to wet/moist meadows, lakes, rivers, and streams	Yes/Yes	None; no suitable habitat
Alpova alexsmithii (fungus) *	Cascades, Central OR to WA	Associated with various Pinaceae sp., incl. Pacific silver fir, lodgepole, Engelmann spruce, and mountain hemlock	Yes/Yes	None; no suitable habitat
Anastrophyllum minutum (liverwort)	Circumboreal	Typically associated with other bryophytes in tight mats on ledges or at the base of cliffs in the mountain hemlock zone	No/No	None; no suitable habitat
Anthelia julacea (liverwort)	Northern hemisphere in boreal and montane regions, found at Diamond Peak/Yoran Lake area of Crescent RD	Found on peaty soil in subalpine/alpine habitats above 5,000 ft. Grows on wet crags, streamsides and areas where snow lies late in the year. In Oregon often associated with low ericaceous shrubs	No/Yes	None; no suitable habitat
Arabis suffrutescens var. *horizontalis* (vascular plant)	South-Central Oregon	Meadows, woods, summits, ridges, and exposed rock outcrops	No/No	None; no suitable habitat
Arnica viscosa (vascular plant)	South-Central Oregon Cascades, California	Scree, talus gullies, lava flows and slopes w/ seasonal runoff. May be in moraine lake basins or crater lake basins	No/Yes	None; no suitable habitat
Astragalus peckii (vascular plant)	South-Central Oregon	Basins, benches, gentle slopes, and meadows.	Yes /Yes	None; no suitable habitat
Barbilophozia lycopodiooides (liverwort) *	Circumboreal, south to Oregon and Idaho	High elevation peaks, peaty soil	No/No	None; no suitable habitat
Botrychium pumicola (vascular plant)	Central Oregon	Alpine-subalpine ridges, slopes, and meadows. Lodgepole forests in basins with frost pockets, pumice flats	Yes/Yes	None; no suitable habitat
Brachydontium olympicum (moss) *	Alaska through Oregon, Cascade Mountains	Subalpine to alpine boulder fields, moraines and cliff faces	No/No	None; no suitable habitat

R6 Sensitive Plant Species Documented or Suspected on the Deschutes National Forest	Range	Habitat	Known occurrence on Sisters RD? On Forest?	Probability of Occurrence in Project Area
Calamagrostis breweri (vascular plant)	Oregon North Cascades and California	Non-forest moist-to-dry subalpine and alpine meadows, open slopes, streambanks, lake margins	No/No	None; no suitable habitat
Carex abrupta (vascular plant) *	Oregon, California, Nevada	Montane, forests, meadows and open slopes. Usually dry soils	No/No	None; no suitable habitat
Carex capitata (vascular plant) *	Circumboreal	Wet meadows, fens and bogs	Yes /Yes	None; no suitable habitat
Carex diandra (vascular plant) *	Circumboreal, south to California	Swamps, sphagnum bogs, lake margins	No/No	None; no suitable habitat
Carex lasiocarpa var. Americana (vascular plant) *	S Cascades of Washington, Idaho, Montana, Utah, irregularly to Oregon	Mid elevation swamps and wet meadows	No/Yes	None; no suitable habitat
Carex livida (vascular plant)	Oregon Washington, California, Idaho	In peatlands, including fens and bogs; wet meadows with still or channeled water	No/No	None; no suitable habitat
Carex retrorsa (vascular plant) *	Nevada, Oregon, Washington, Idaho, to the north and east	Bogs, swamps, wet meadows, stream margins	No/No	None; no suitable habitat
Carex vernacula (vascular plant) *	Washington, Oregon, California, Idaho	Alpine, moist meadows, open slopes	No/No	None; no suitable habitat
Castilleja chlorotica (vascular plant)	Oregon east Cascades	LP-PP, mixed conifer forest openings. PP at lower and LP at mid, and mixed conifer at highest elevations	No/Yes	None; no suitable habitat
Cephaloziella spinigera (liverwort)	Widespread around the northern hemisphere in boreal and montane regions	Bogs and fens; boreal and montane. Known from Fremont/Winema National Forest. In moss-dominated communities.	No/no	None; no suitable habitat
Cheilanthes feei (vascular plant) *	Widespread western states, barely in Oregon	Limestone rocky areas	No/No	None; no suitable habitat
Chyloscyphus gimmiparis (liverwort) *	Oregon, Alaska, Utah	High elevation montane streams, aquatic	No/No	None; no suitable habitat
Collomia mazama (vascular plant)	South-Central Cascades, Oregon	Meadows (dry to wet, level to sloping); stream banks and bars, lakeshores and vernal pool margins; forest edges and openings; alpine slopes	No /No	None; no suitable habitat

R6 Sensitive Plant Species Documented or Suspected on the Deschutes National Forest	Range	Habitat	Known occurrence on Sisters RD? On Forest?	Probability of Occurrence in Project Area
Conostomum tetragonum (moss) *	Circumboreal; from BC through California	Subalpine to alpine boulder fields, moraines, and cliff ledges	No/No	None; no suitable habitat
Cyperus acuminatus (vascular plant) *	Western states, west cascades Oregon	Margins wet areas, lake edges	No/Yes	None; no suitable habitat
Cyperus lupulinus ssp.*lupulinus* (vascular plant) *	Idaho, Eastern Washington, Oregon	Rocky slopes adjacent to streams, low elevation	No/No	None; no suitable habitat
**Dermatocarpon luridum* (lichen)	Oregon, Washington	On rocks or bedrock in streams or seeps, usually submerged or inundated for most of the year	No/No	None; no suitable habitat
Elatine brachysperma (vascular plant) *	Washington, Oregon, California, Nevada	Wet to drying muds	No/No	None; no suitable habitat
Encalypta brevipes (moss)	Circumboreal, British Columbia to Oregon. Known from Rogue River/Siskiyou National Forest.	In soil on cliff ledges/ crevices; sites may have frequent fog penetration; apparently restricted to unglaciated regions; +/- Associated with Pacific silver fir, subalpine fir, and mountain hemlock communities	No/No	None; no suitable habitat
Entosthodon fascicularis (moss)	British Columbia, Idaho, Washington, Oregon, California (Arizona, Europe, North Africa.	Grassland, oak savanna, grassy balds and rock outcrops. Individual plants / small patches on seasonally wet, exposed soil in seeps/ intermittent streams.	No/No	None; no suitable habitat
Eucephalus gormanii (vascular plant)	Northern West Cascades	Rocky ridges, outcrops, or rocky slopes	No/Yes	None; no suitable habitat
Gastroboletus vividus (fungus)	Rogue River N.F., Crater Lake NP, CA	Associated with the roots of Pinaceae sp. such as Shasta red fir and mountain hemlock	No/No	None; no suitable habitat
Gentiana newberryi var. *newberryi* (vascular plant) *	Oregon east and west Cascades, California	Wet to dry alpine, subalpine, and mountain mixed conifer zones, in forest openings and meadows, commonly with tufted hairgrass	Yes/Yes	None; no suitable habitat

R6 Sensitive Plant Species Documented or Suspected on the Deschutes National Forest	Range	Habitat	Known occurrence on Sisters RD? On Forest?	Probability of Occurrence in Project Area
Haplomitrium hookeri (liverwort)	Widespread but irregularly distributed over temperate and boreal regions, northern and southern hemispheres, Linton Meadows Three Sisters wilderness	On soil in open areas, intermixed with other liverworts and hornworts.	Yes/No	None; no suitable habitat
Harpanthus flotovianus (liverwort)	Widespread in the northern hemisphere in boreal and montane regions. In western North America reaching the southern edge of its range in Oregon	Bogs and fens. On Deschutes, at about 5600' in a smallish, low gradient, persistently groundwater-fed community in the Three Sisters Wilderness Area, south of South Sister	No/Yes	None; no suitable habitat
Helodium blandowii (moss) *	Circumboreal, south through Cascades to Sierra Nevada, and through Rockies to Arizona	Montane fens with calcareous groundwater.	No/Yes	None; no suitable habitat
Heliotropium curassavicum (vascular plant) *	Western United States	Alkaline, saline playas, receding ponds and clay soils	No/No	None; no suitable habitat
Helvella crassitunicata (fungus) *	Cascades, central Oregon to northern WA	On soil, along trails in montane regions with sp. such as Pacific silver fir, grand fir, and mountain hemlock	Yes /No	None; no suitable habitat
Hygrophorus caeruleus (fungus) *	Cascades, central Oregon (Jefferson Co.) to central WA	On soil in association with roots of Pinaceae sp. near melting snowbanks	Yes /Yes	None; no suitable habitat
Jungermannii polaris (liverwort)	Circumboreal and south to California, found at Diamond Peak/Yoran Lake area of Crescent RD. Also found within Waldo Lake at depths up to 330 ft.	Subalpine to alpine habitats above 5,000 ft. Forms small to sometimes extensive mats over peaty soil on damp ledges and crevices of rocks, sometimes along streams and rivulets, sometimes aquatic.	No/Yes	None; no suitable habitat
**Leptogium cyanescens* (lichen)	Oregon, Washington	Generally riparian but recently documented in upland settings on vine maple, big leaf maple and Oregon white oak	No/No	None; no suitable habitat

R6 Sensitive Plant Species Documented or Suspected on the Deschutes National Forest	Range	Habitat	Known occurrence on Sisters RD? On Forest?	Probability of Occurrence in Project Area
Lipocarpha aristulata (vascular plant) *	Washington, Oregon, California, Idaho	Low elevation streamsides, gravel bars	No/No	None; no suitable habitat
Lobelia dortmanna (vascular plant)	Oregon East Cascades, Washington	Shallow water at margins of lakes, ponds, and rivers or in standing water of bogs and wet meadows	Yes/Yes	None; no suitable habitat
Lophozia gillmanii (liverwort)	Widespread around the northern hemisphere in boreal and montane regions, in western North America	Cliffs and ledges; boreal and montane. One Oregon site in wet meadow at 6500'	No/No	None; no suitable habitat
Lycopodiella inundata (vascular plant)	Oregon, Idaho, California, Montana – Circumboreal	Deflation areas in coastal backdunes; montane bogs, including sphagnum bogs; less often wet meadows	No/Yes	None; no suitable habitat
Lycopodium complanatum (vascular plant)	Oregon, Idaho, Washington +	Edges of wet meadows; dry forested midslope with >25% canopy cover	No/No	None; no suitable habitat
Marsupella sparsifolia (liverwort)	Polar and alpine regions in Northern Europe and northern North America, South Africa ,New Zealand. Rare in the Pacific Northwest, south to Mt. Hood in Oregon and possibly California.	Alpine exposed sites, occasionally flooded sands, sandy soils along streams or acidic soils in late snow areas. Siliceous	No/No	None; no suitable habitat
Muhlenbergia minutissima (vascular plant) *	Western United States	Thin lava soils, associated with Typha, sedges	No/No	None; no suitable habitat
Nardia japonica (liverwort)	In the North Pacific arc from Japan, through Siberia and British Columbia south to Oregon	Subalpine habitats on peaty soil on rock ledges or in rocky meadows	No/No	None; no suitable habitat
Ophioglossum pusillum (vascular plant)	Oregon, Washington, California, Idaho +	Dune deflation plains; marsh edges; vernal ponds and stream terraces in moist meadows	No/No	None; no suitable habitat
***Penstemon peckii* (vascular plant)**	**Central Oregon east Cascades**	**PP openings, open PP forests; mixed conifer openings; recovering fluvial surfaces**	Yes/Yes	None; no suitable habitat

R6 Sensitive Plant Species Documented or Suspected on the Deschutes National Forest	Range	Habitat	Known occurrence on Sisters RD? On Forest?	Probability of Occurrence in Project Area
Pilularia americana (vascular plant)	Oregon, California +	Alkali and other shallow vernal pools, not recently used stock ponds, reservoir shores	No/No	None; no suitable habitat
*Pinus albicaulis (*vascular plant)	Western US and Canada	Rocky, exposed sites with shallow, well-drained soils. In upper portions of mountain hemlock vegetation series or above, in subalpine parkland.	Yes/Yes	None; no suitable habitat
Polytrichum sphaerothecium (moss) *	East Asia-Western North America through Alaska to Oregon; highest Cascade peaks	Subalpine to alpine, forming green to brown sods on igneous rocks in exposed or sheltered sites.	No/No	None; no suitable habitat
Potamogeton diversifolius (vascular plant)	Oregon, Idaho, Nevada, California	Aquatic, pond edges	No/No	None; no suitable habitat
Preissia quadrata (liverwort)	Circumboreal in temperate to boreal regions. In western North America extending south to California	On soil with little organic material, often on cliff ledges or in crevices in rocky areas	Yes/No	None; no suitable habitat
Pseudocalliergon trifarium (moss) *	Circumboreal; British Columbia, Alberta, Montana, Oregon	Montane fens, submerged to emergent or on saturated ground, usually in full sunlight	No/No	None; no suitable habitat
**Ramaria amyloidea* (fungus) S&M	Central OR Cascades (Wiliamette and DES NF); WA Cascades, NW CA	Mycorrhizal with true firs, Douglas fir, and western hemlock in humus or soil.	No/Yes	None; no suitable habitat
**Rhizomnium nudum* (bryophyte) S&M	Oregon, Washington +	Moss found in moist coniferous forests. On DNF associates include lodgepole pine, Engelmann spruce, mountain hemlock, and western white pine	No/Yes	None; no suitable habitat
Rorippa columbiae (vascular plant)	Oregon, California, Washington	Wet to vernally moist sites in meadows, fields, playas, lakeshores, intermittent stream beds, banks of perennial streams, along irrigation ditches, river bars and deltas, roadsides.	No/Yes	None; no suitable habitat

R6 Sensitive Plant Species Documented or Suspected on the Deschutes National Forest	Range	Habitat	Known occurrence on Sisters RD? On Forest?	Probability of Occurrence in Project Area
Rotala ramosior (vascular plant) *	Washington, Oregon, California, Idaho	Low elevation low gradient shores, pond edges, river bars	No/No	None; no suitable habitat
Scheuchzeria palustris var. *americana* (vascular plant)	Oregon, Washington, California, Idaho +	Open to canopied bogs, fens, and other wetlands where often in shallow water	Yes/Yes	None; no suitable habitat
Schistidium cinclidodonteum (moss)	Washington, Idaho, Oregon, California, Nevada and Europe	In large loose mats on wet or dry rocks / soil in rock crevices, often along intermittent streams. . Ponderosa pine, grand fir, Pacific silver fir, subalpine fir, mountain hemlock and possibly whitebark pine communities.	No/No	None; no suitable habitat
Schistostega pennata (bryophyte) S&M	Oregon, Washington, circumboreal	Mineral soil in crevices on lower and more sheltered parts of root wads of fallen trees near streams or other wet areas	Yes/Yes	None; no suitable habitat
Schofieldia monticola (liverwort)	Oregon, Washington, Russia	Subal;pine meadows to alpine areas. On peaty soils under heather or beside small streams.	No/No	None; no suitable habitat
Schoenoplectus subterminalis (vascular plant)	Oregon, Washington, California, Idaho +	Generally submerged to emergent in quiet water 2-8 decimeters deep, in peatlands, sedge fens, creeks, ditches, ponds and lakes	No/Yes	None; no suitable habitat
**Scouleria marginata* (bryophyte) S&M	Pacific Northwest endemic; Oregon, Washington, Idaho, northern California, southwestern British Columbia	Exposed or shaded rocks in streams; seasonally submerged or emergent	No/No	None; no suitable habitat
Splachnum ampullaceum (moss) *	Circumboreal; from Alaska through Oregon, and Alberta	Peatlands, wetlands, on old ungulate dung	No/No	None; no suitable habitat
Texosporium sancti-jacobi (lichen) *	Western North America	In Oregon, late seral dry shrub/grassland	No/No	None; no suitable habitat

R6 Sensitive Plant Species Documented or Suspected on the Deschutes National Forest	Range	Habitat	Known occurrence on Sisters RD? On Forest?	Probability of Occurrence in Project Area
Tholurna dissimilis (lichen)	Scandinavia, Northwest Territories, Yukon, and British Columbia south into Washington and Oregon. On Black Butte, Sisters District,	- Open Pinus albicaulis stand on moderate slope, with dense understory of shrubs; also open Abies lasiocarpa forest with low stunted trees.	Yes/Yes	None; no suitable habitat
Tomentypnum nitens (moss) *	Circumboreal, Alaska through Oregon	Montane fens at slightly elevated (stumps, logs, hummocks)	Yes/Yes	None; no suitable habitat
Trematodon boasii (moss)	British Columbia through California, Japan, Newfoundland	Subalpine stream, trail and pond edges.	No/No	None; no suitable habitat
Tritomaria exsectiformis (liverwort)	Alaska through Oregon, to Montana, Wyoming and Colorado	Open to shaded coniferous forest along perennial flowing water from springs and seeps	Yes/Yes	None; no suitable habitat
Utricularia minor (vascular plant) *	Western United states north through Canada	Aquatic plant of pools, ponds, bogs, marshes, wet meadows	Yes/Yes	None; no suitable habitat

APPENDIX E: Survey & Manage Botany Checklist and Tracking Form

Deschutes National Forest
Survey & Manage Botany Checklist and Tracking Form

Project Name: Mt. Jefferson and Mt. Washington Trails Project

Describe Project Type: Decommissioning of over grown trails in wildfire areas or changing trail maintenance to a more primitive trail

Prepared By: Maret Pajutee **Date:** Nov 22, 2013

District: Sisters

Location: Mt Jefferson and Mt Washington Wilderness areas

The Forest Service (FS) and Bureau of Land Management (BLM), referred to as the Agencies, are implementing the January 2001 *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (2001 ROD S&Gs).

Deschutes National Forest Survey & Manage Botany Tracking Form

Botany Species Survey and Site Management Summary

The Deschutes National Forest compiled the species listed below (**Table A**) from the 2001 ROD. This list includes those vascular and non-vascular plant species with pre-disturbance survey requirements (Category A or C species), whose known or suspected range includes the Deschutes National Forest according to the references listed in this report.

Equivalent effort surveys are not required for this project for Category B lichen, bryophyte and fungi species because:

_XX__ Old growth habitat does not occur with the project area

__ _ Old growth habitat occurs but the project will not cause a significant negative impact on species' habitat, life cycle, microclimate, or life support requirement (see 2001 ROD, Standards & Guidelines p. 22)

Explanation: The project ares is within the trail prisms and trail stuctures which have been previously disturbed and do not provide habitat. Habitat will not be disturbed.

Table A identifies Category A, B, C, D, and E species with known sites located within the Project Area. The references listed in the report were used to determine appropriate known site management.

Survey & Manage plant species evaluation for the Wilderness Trails Project on Sisters Ranger District, Deschutes National Forest.

Species	Group	S&M Category	Survey Triggers			Survey Results			Site Management
			Project Within Species Range?	Project Contains Suitable Habitat or Old Growth Forest?	Project Habitat Disturbing?	Surveys Required?	Survey Date (month/ year)	Sites Known or Found?	Describe applied management and what information used to determine this management
Schistostega pennata	Bryophyte	A	yes	no	no	no			
Leptogium cyanescens	Lichen	A	yes	no	no	no			
Rhizomnium nudum	Bryophyte	B	yes	no	no	no			
Tritomaria exsectiformis	Bryophyte	B	yes	no	no	no			
Calicium abietinum	Lichen	B	yes	no	no	no			
Chaenotheca chrysocephala	Lichen	B	yes	no	no	no			
Chaenotheca ferruginea	Lichen	B	yes	no	no	no			
Cladonia norvegica	Lichen	B	yes	no	no	no			
Dermatocarpon luridum	Lichen	B	yes	no	no	no			
Tholurna dissimilis	Lichen	B	yes	no	no	no			
Albatrellus caeruleoporus	Fungus Mycorrhizal	B	yes	no	no	no			
Albatrellus ellisii	Fungus Mycorrhizal	B	yes	no	no	no			
Albatrellus flettii	Fungus Mycorrhizal	B	yes	no	no	no			
Alpova alexsmithii	Fungus Mycorrhizal	B	yes	no	no	no			
Arcangeliella crassa	Fungus Mycorrhizal	B	yes	no	no	no			
Arcangeliella lactarioides	Fungus Mycorrhizal	B	yes	no	No	no			

Species	Group	S&M Category	Survey Triggers			Survey Results			Site Management
			Project Within Species Range?	Project Contains Suitable Habitat or Old Growth Forest?	Project Habitat Disturbing?	Surveys Required?	Survey Date (month/ year)	Sites Known or Found?	Describe applied management and what information used to determine this management
Boletus pulcherrimus	Fungus Mycorrhizal	B	yes	no	No	no			
Bondarzewia mesenterica	Fungus ?	B	yes	no	No	no			
Cantherellus subalbidus	Fungus Mycorrhizal	B	yes	no	no	no			
Choiromyces alveolatus	Fungus Mycorrhizal	B	yes	no	no	no			
Chroogomphus loculatus	Fungus Mycorrhizal	B	yes	no	no	no			
Clavariadelphus ligula	Fungus Mycorrhizal	B	yes	no	no	no			
Clavariadelphus occidentalis	Fungus Mycorrhizal	B	yes	no	no	no			
Clavariadelphus sachalinensis	Fungus Mycorrhizal	B	yes	no	no	no			
Clavariadelphus truncatus	Fungus Mycorrhizal	B	yes	no	no	no			
Collybia bakerensis	Fungus Litter saprobe	B	yes	no	no	no			
Cortinarius magnivelatus	Fungus Mycorrhizal	B	yes	no	no	no			
Cortinarius olumpianus	Fungus Mycorrhizal	B	yes	no	no	no			
Cortinarius verrucisporus	Fungus Mycorrhizal	B	yes	no	no	no			
Cortinarius wiebeae	Fungus Mycorrhizal	B	yes	no	no	no			
Cudonia monticola	Fungus Litter saprobe	B	yes	no	no	no			

Species	Group	S&M Category	Survey Triggers			Survey Results			Site Management
			Project Within Species Range?	Project Contains Suitable Habitat or Old Growth Forest?	Project Habitat Disturbing?	Surveys Required?	Survey Date (month/ year)	Sites Known or Found?	Describe applied management and what information used to determine this management
Elaphomyces anthracinus	Fungus Mycorrhizal	B	yes	no	no	no			
Elaphomyces subviscidus	Fungus Mycorrhizal	B	yes	no	no	no			
Fayodia bishpaerigera	Fungus Mycorrhizal	B	yes	no	no	no			
Fevansia aurantiaca	Fungus Mycorrhizal	B	yes	no	no	no			
Gastroboletus ruber	Fungus Mycorrhizal	B	yes	no	no	no			
Gastroboletus subalpinus	Fungus Mycorrhizal	B	yes	no	no	no			
Gastroboletus turbinatus	Fungus Mycorrhizal	B	yes	no	no	no			
Gastroboletus vividus	Fungus Mycorrhizal	B	yes	no	no	no			
Gautieria magnicellaris	Fungus Mycorrhizal	B	yes	no	no	no			
Gomphus bonarii	Fungus Mycorrhizal	B	yes	no	no	no			
Gymnomyces abietis	Fungus Mycorrhizal	B	yes	no	no	no			
Gymnomyces nondistincta	Fungus Mycorrhizal	B	yes	no	no	no			
Gyromitra californica	Fungus Wood/Litter saprobe	B	yes	no	no	no			
Helvella crassitunicata	Fungus Mycorrhizal	B	yes	no	no	no			

Species	Group	S&M Category	Survey Triggers			Survey Results			Site Management
			Project Within Species Range?	Project Contains Suitable Habitat or Old Growth Forest?	Project Habitat Disturbing?	Surveys Required?	Survey Date (month/ year)	Sites Known or Found?	Describe applied management and what information used to determine this management
Hydnotrya inordata	Fungus Mycorrhizal	B	yes	no	no	no			
Hygrophorus caeruleus	Fungus Mycorrhizal	B	yes	no	no	no			
Leucogaster citrinus	Fungus Mycorrhizal	B	yes	no	no	no			
Mycena monticola	Fungus Mycorrhizal	B	yes	no	no	no			
Mycena overholtsii	Fungus Wood saprobe	B	yes	no	no	no			
Nivogastrium nubigenum	Fungus Mycorrhizal	B	yes	no	no	no			
Polyozellus multiplex	Fungus Mycorrhizal	B	yes	no	no	no			
Ramaria amyloidea	Fungus Mycorrhizal	B	yes	no	no	no			
Ramaria aurantiisiccescens	Fungus Mycorrhizal	B	yes	no	no	no			
Ramaria botrytis var. aurantiiramosa	Fungus Mycorrhizal	B	yes	no	no	no			
Ramaria coulterae	Fungus Mycorrhizal	B	yes	no	no	no			
Ramaria largentii	Fungus Mycorrhizal	B	yes	no	no	no			
Ramaria maculatipes	Fungus Mycorrhizal	B	yes	no	no	no			
Ramaria rubrievanescens	Fungus Mycorrhizal	B	yes	no	no	no			
Ramaria thiersii	Fungus Mycorrhizal	B	yes	no	no	no			

Species	Group	S&M Category	Survey Triggers			Survey Results			Site Management
			Project Within Species Range?	Project Contains Suitable Habitat or Old Growth Forest?	Project Habitat Disturbing?	Surveys Required?	Survey Date (month/ year)	Sites Known or Found?	Describe applied management and what information used to determine this management
Rhizopogon abietis	Fungus Mycorrhizal	B	yes	no	no	no			
Rhizopogon atroviolaceus	Fungus Mycorrhizal	B	yes	no	no	no			
Rhizopogon evadens var. subalpinus	Fungus Mycorrhizal	B	yes	no	no	no			
Rhizopogon exiguous	Fungus Mycorrhizal	B	yes	no	no	no			
Rhizopogon flavofibrillosus	Fungus Mycorrhizal	B	yes	no	no	no			
Sarcodon fuscoindicus	Fungus Mycorrhizal	B	yes	no	no	no			
Sarcodon imbricatus	Fungus Mycorrhizal	B	yes	no	no	no			
Sarcosphaera coronaria	Fungus Mycorrhizal	B	yes	no	no	no			
Spathularia flavida	Fungus Litter saprobe	B	yes	no	no	no			
Tremiscus helvelloides	Fungus Litter saprobe	B	yes	no	no	no			
Cypripedium montanum	Vascular	C	yes	no	no	no			
Buxbaumia viridis	Bryophyte	D	yes	no	no	no			
Bryoria tortuosa	Lichen	D	yes	no	no	no			
Cantherellus subalbidus	Fungus Mycorrhizal	D	yes	no	no	no			
Chalciporus piperatus	Fungus Mycorrhizal	D	yes	no	no	no			
Craterellus tubaeformis	Fungus Mycorrhizal	D	yes	no	no	no			

Species	Group	S&M Category	Survey Triggers			Survey Results			Site Management
			Project Within Species Range?	Project Contains Suitable Habitat or Old Growth Forest?	Project Habitat Disturbing?	Surveys Required?	Survey Date (month/ year)	Sites Known or Found?	Describe applied management and what information used to determine this management
Phaeocollybia attenuata	Fungus Mycorrhizal	D	yes	no	no	no			
Ramaria rubripermanens	Fungus Mycorrhizal	D	yes	no	no	no			
Rhizopogon truncatus	Fungus Mycorrhizal	D	yes	no	no	no			
Sparassis crispa	Fungus Wood saprobe	D	yes	no	no	no			
Chaenothecopsis pusilla	Lichen	E	yes	no	no	no			
Chaenotheca subroscida	Lichen	E	yes	no	no	no			
Leptogium teretiusculum	Lichen	E	yes	no	no	no			
Calicium glaucellum	Lichen	F	yes	no	no	no			
Chaenotheca furfuracea	Lichen	F	yes	no	no	no			
Collema nigrescens	Lichen	F	yes	no	no	no			
Hypogymnia oceanica	Lichen	F	yes	no	no	no			
Gomphus clavatus	Fungus Mycorrhizal	F	yes	no	no	no			
Gryomitra esculenta	Fungus Mycorrhizal	F	yes	no	no	no			
Gyromitra montana	Fungus Saprobe but may be mycorrhizal also	F	yes	no	no	no			
Otidea onotica	Fungus Saprobe but may be mycorrhizal also	F	yes	no	no	no			

Category:

A-Pre-disturbance surveys and management of all known sites are required
B- Equivalent effort surveys required if old growth habitat disturbed and manage all known sites
C-Pre-disturbance surveys and management of high priority sites are required
D-Pre-disturbance surveys are not required, but required to manage high priority sites
E-Pre-disturbance surveys are not required, but required to manage all known sites
F- Pre-disturbance surveys and management of known sites are not required

STATEMENT OF COMPLIANCE

The Deschutes National Forest applied the 2001 Species List to the Mt. Jefferson and Mt. Washington Trails Project, completing pre-disturbance surveys, equivalent effort surveys (if old growth habitat is disturbed) and management of known sites (Table A) required by Survey Protocols and Management Recommendations to comply with the *2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines*.

SUMMARY OF SURVEY RESULTS

Project surveys discovered sites for the following Survey and Manage plant species:

- NONE_____

Known sites are present within the project area for these additional species:

- NONE_____

/s/ Maret Pajutee Nov 22, 2013

Sisters Ranger District

APPENDIX F: DESCHUTES NATIONAL FOREST NOXIOUS WEED LIST

DESCHUTES NATIONAL FOREST NOXIOUS WEED LIST

The following species are listed by the Oregon Department of Agriculture as noxious weeds. These are species designated by the Oregon State Weed Board as injurious to public health, agriculture, recreation, wildlife, or any public or private property.

Scientific Name	Common Name	Presence	Code
Agropyron repens	Quackgrass	Documented	AGRREP
Cardaria (=Lepidium) draba	Whitetop	Potential	CARDRA
Carduus nutans	Musk thistle	Potential	CARNUT
Carduus pycnocephalus	Italian thistle	Potential	CARPYC
Centaurea diffusa	Diffuse knapweed	Documented	CENDIF
Centaurea maculosa	Spotted knapweed	Documented	CENMAC
Centaurea pratensis	Meadow knapweed	Potential	CENPRA
Centaurea repens	Russian knapweed	Potential	CENREP
Centaurea solstitialis	Yellow starthistle	Potential	CENSOL
Centaurea virgata ssp. squarrosa	Squarrose knapweed	Potential	CENVIR
Cirsium arvense	Canada thistle	Documented	CIRARV
Cirsium vulgare	Bull thistle	Documented	CIRVUL
Conium maculatum	Poison hemlock	Potential	CONMAC
Cynoglossum officinale	Common houndstongue	Documented	CYNOFF
Cytisus scoparius	Scotch broom	Documented	CYTSCO
Euphorbia esula	Leafy spurge	Documented	EUPESU
Hypericum perforatum	St. Johnswort	Documented	HYPPER
Isatis tinctoria	Dyer's woad	Documented	ISATIN
Kochia scoparia	Kochia	Potential	
	KOCSCO		
Linaria dalmatica	Dalmation toadflax	Documented	LINDAL
Linaria vulgaris	Butter and eggs	Documented	LINVUL
Lythrum salicaria	Purple loosestrife	Potential	LYTSAL
Onopordum acanthium	Scotch thistle	Documented	ONOACA
Salvia aethiopis	Mediterranean sage	Potential	SALAET
Senecio jacobaea	Tansy ragwort	Documented	SENJAC
Taeniatherum caput-medusae	Medusahead	Documented	TAECAP

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